US009964371B1

(12) **United States Patent**
Huang et al.

(10) **Patent No.: US 9,964,371 B1**
(45) **Date of Patent: May 8, 2018**

(54) **CHARGING HANDLE ASSEMBLY**

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(72) Inventors: **George Huang**, Henderson, NV (US); **Eli S. Brandt**, Henderson, NV (US)

(73) Assignee: **BATTLEARMS IP, LLC**, Henderson, NV (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days. days.

(21) Appl. No.: **15/805,132**

(22) Filed: **Nov. 6, 2017**

Related U.S. Application Data

(63) Continuation-in-part of application No. 15/450,754, filed on Mar. 6, 2017, now Pat. No. 9,810,494, which is a continuation of application No. 15/001,000, filed on Jan. 19, 2016, now Pat. No. 9,587,896.

(60) Provisional application No. 62/105,274, filed on Jan. 20, 2015.

(51) **Int. Cl.**
F41A 3/72 (2006.01)
F41A 35/06 (2006.01)

(52) **U.S. Cl.**
CPC ***F41A 3/72*** (2013.01); ***F41A 35/06*** (2013.01)

(58) **Field of Classification Search**
CPC F41A 3/72; F41A 3/20; F41A 35/06; F41A 7/00; F41A 7/02; F41A 9/00; F41A 9/38
See application file for complete search history.

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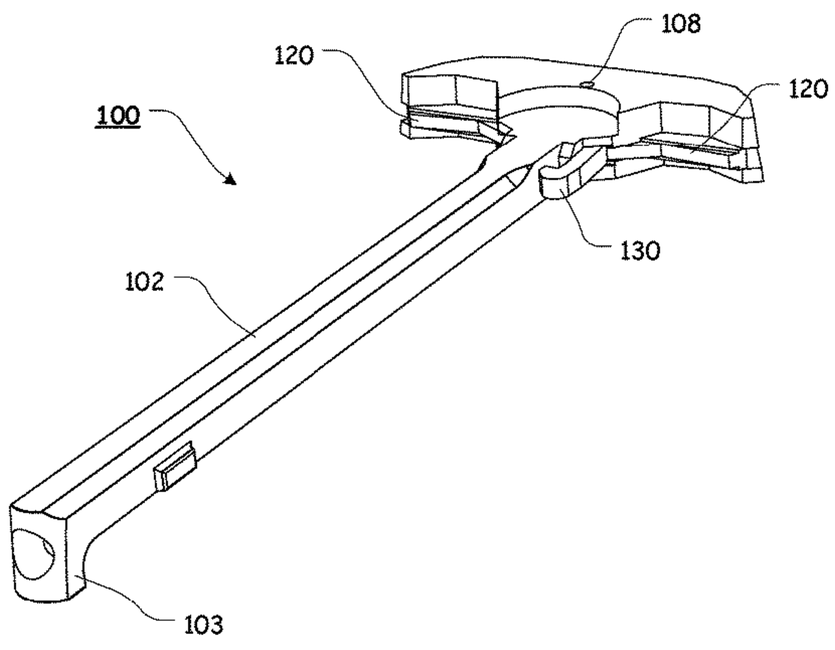
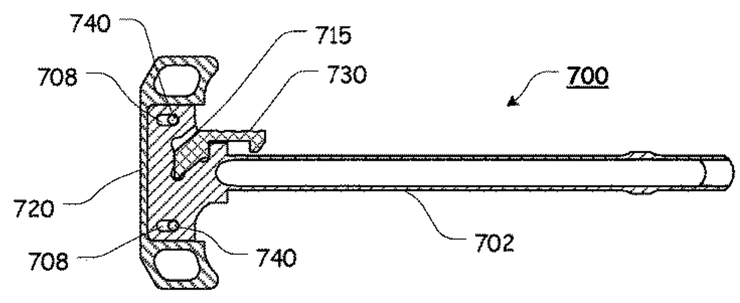
Primary Examiner — Benjamin P Lee
(74) *Attorney, Agent, or Firm* — Shaddock Law Group, PC

(57) **ABSTRACT**

A charging handle having a charging handle body including a base portion; a handle element slidably and at least partially rotatable relative to said base portion; and a latch element slidable and at least partially rotatable relative to said handle element, and wherein at least a portion of said latch element is formed so as to interact with at least a portion of said handle recess such that rotational or longitudinal movement of said handle element relative to a longitudinal axis of said charging handle produces lateral, translational movement of said latch element relative to said charging handle body.

20 Claims, 44 Drawing Sheets





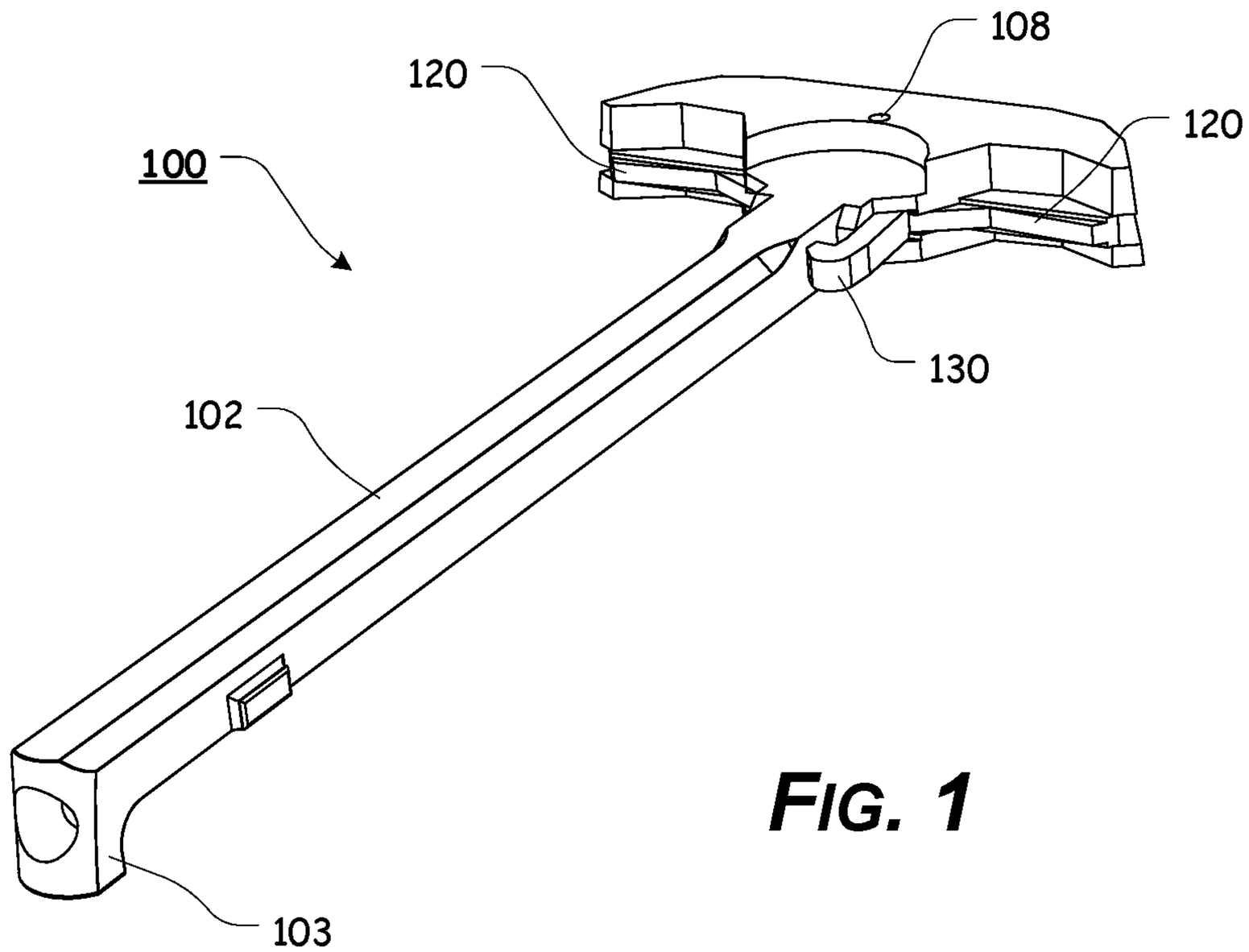


FIG. 1

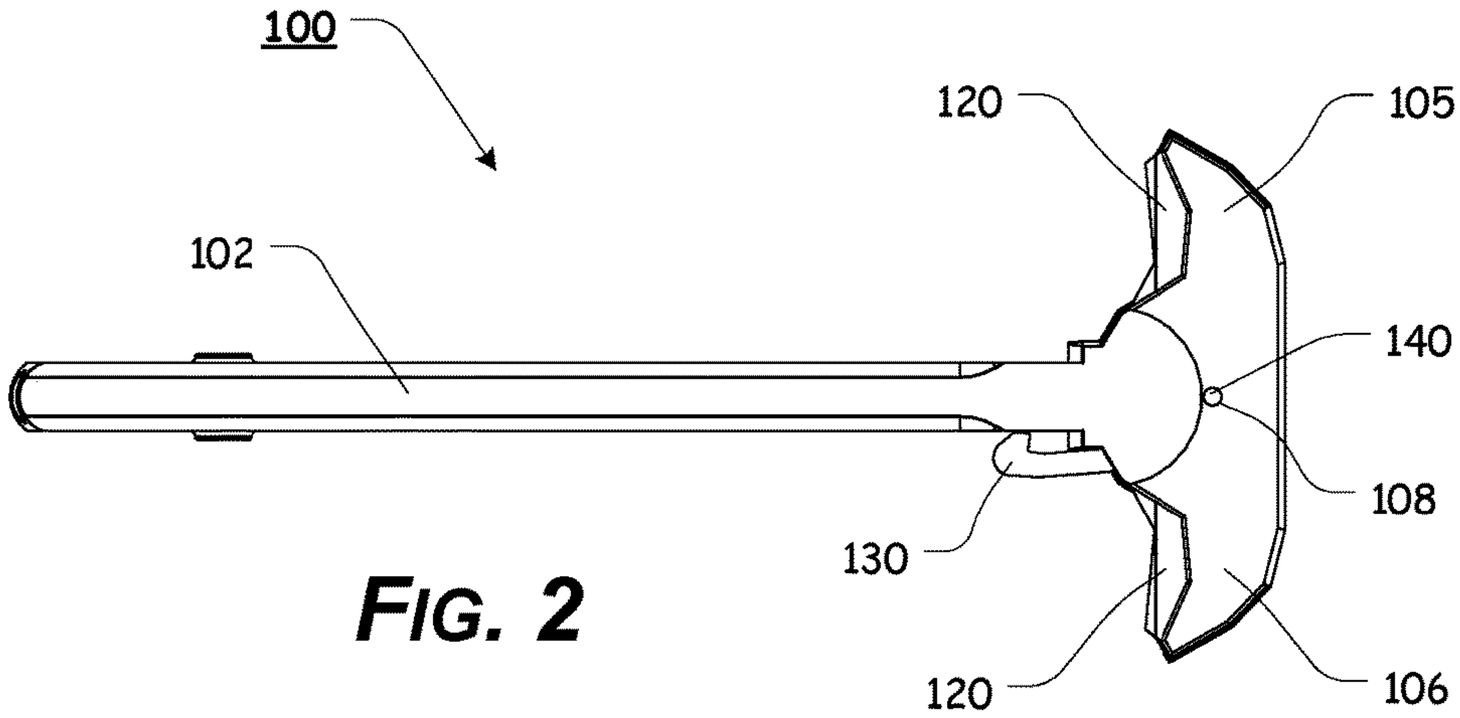

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FIG. 2

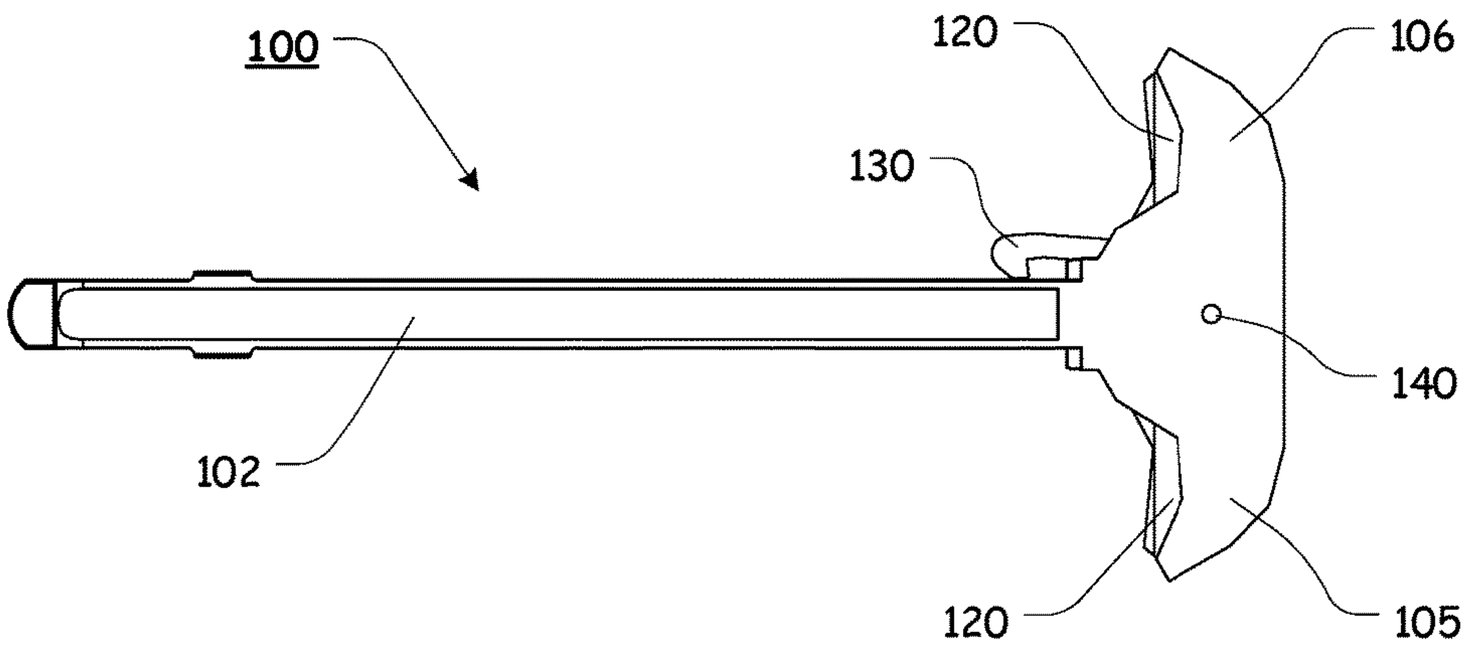
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FIG. 3

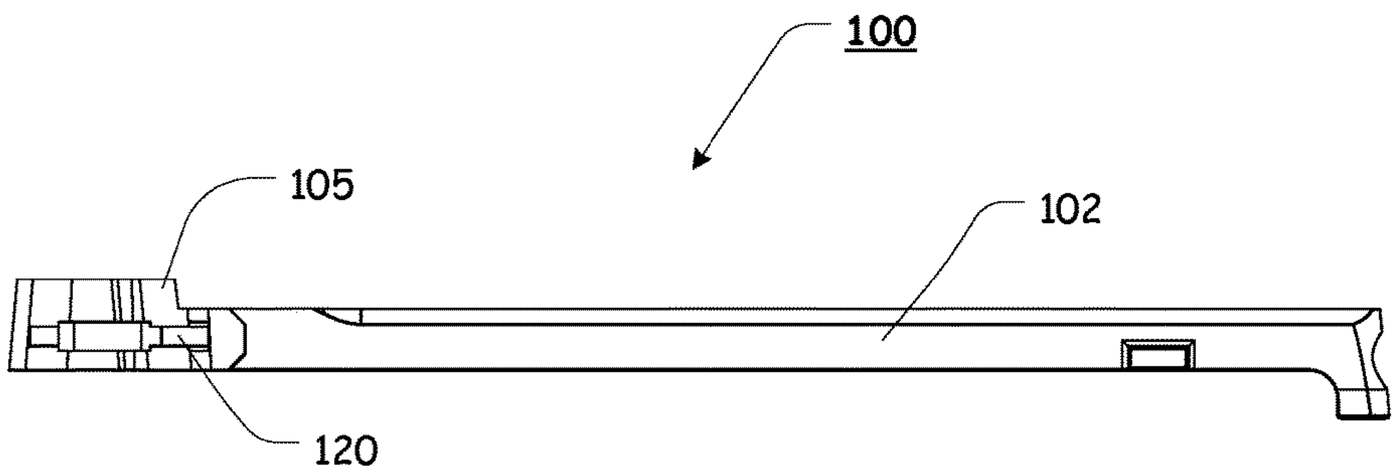


FIG. 4

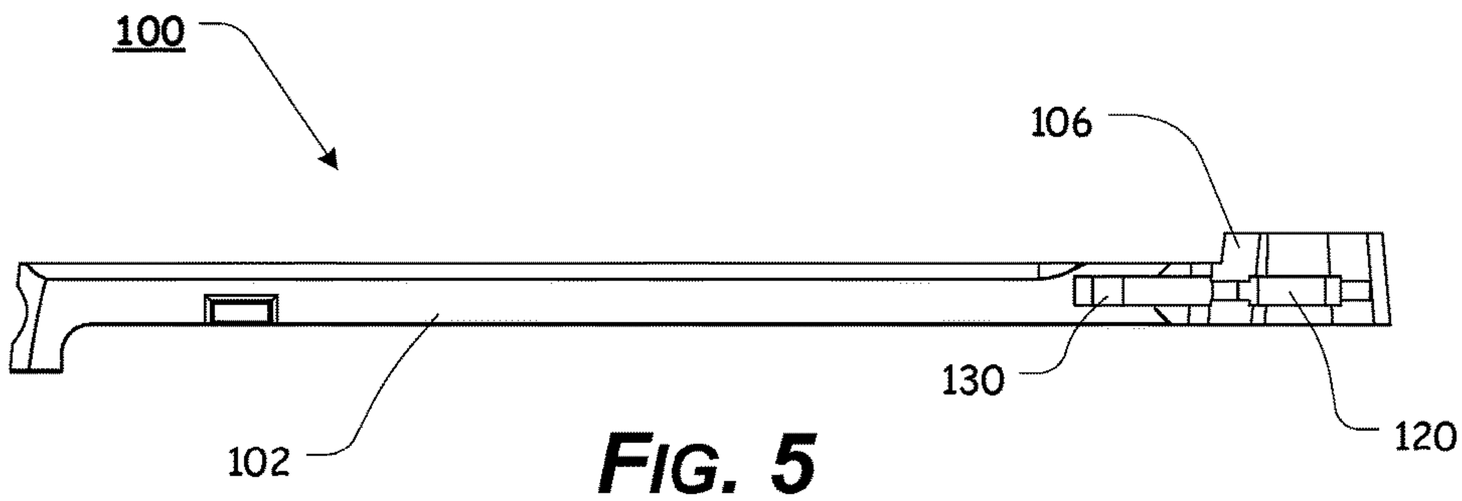


FIG. 5

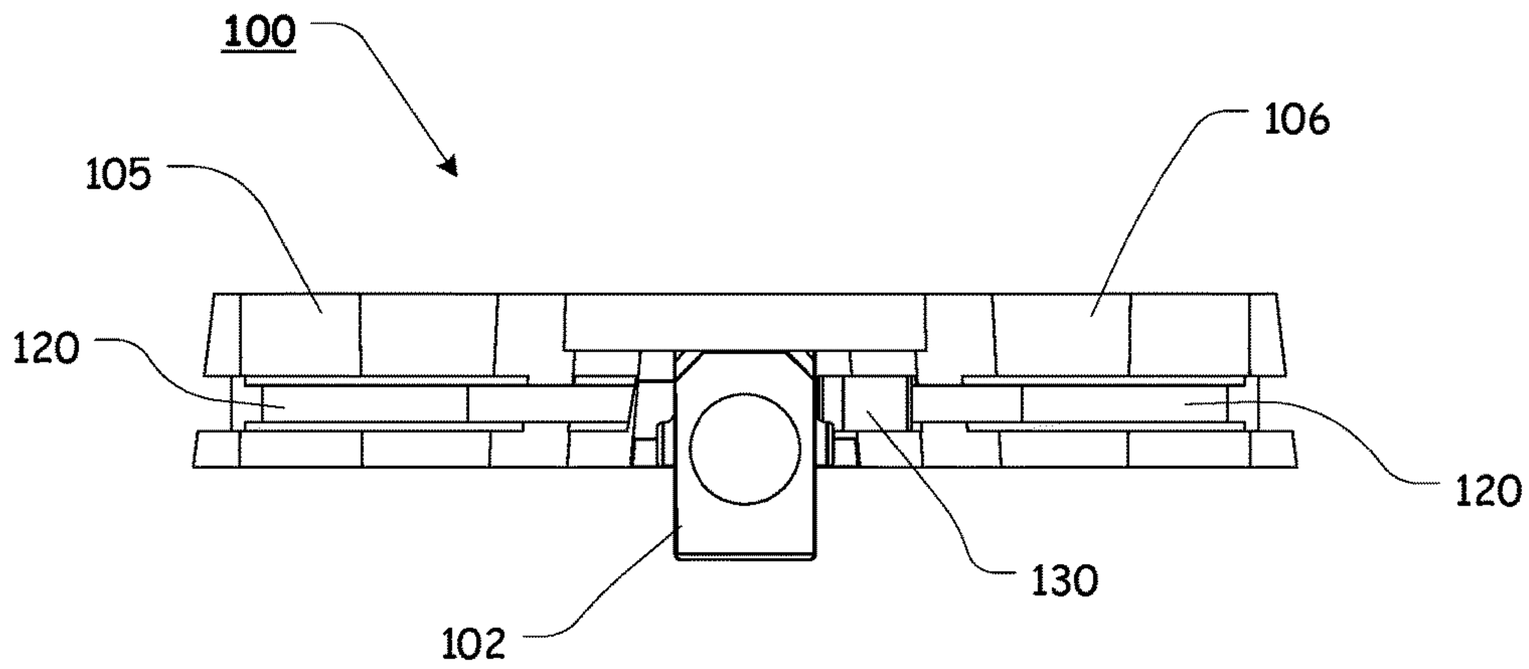


FIG. 6

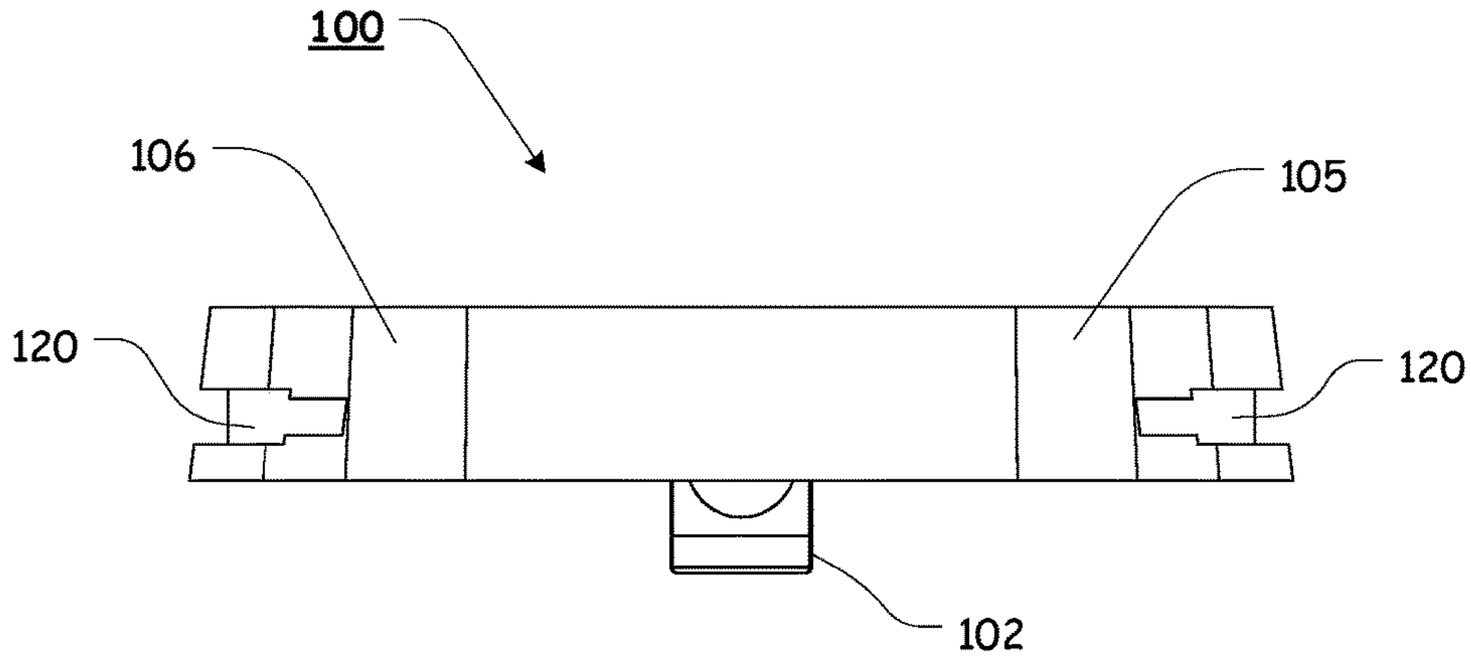
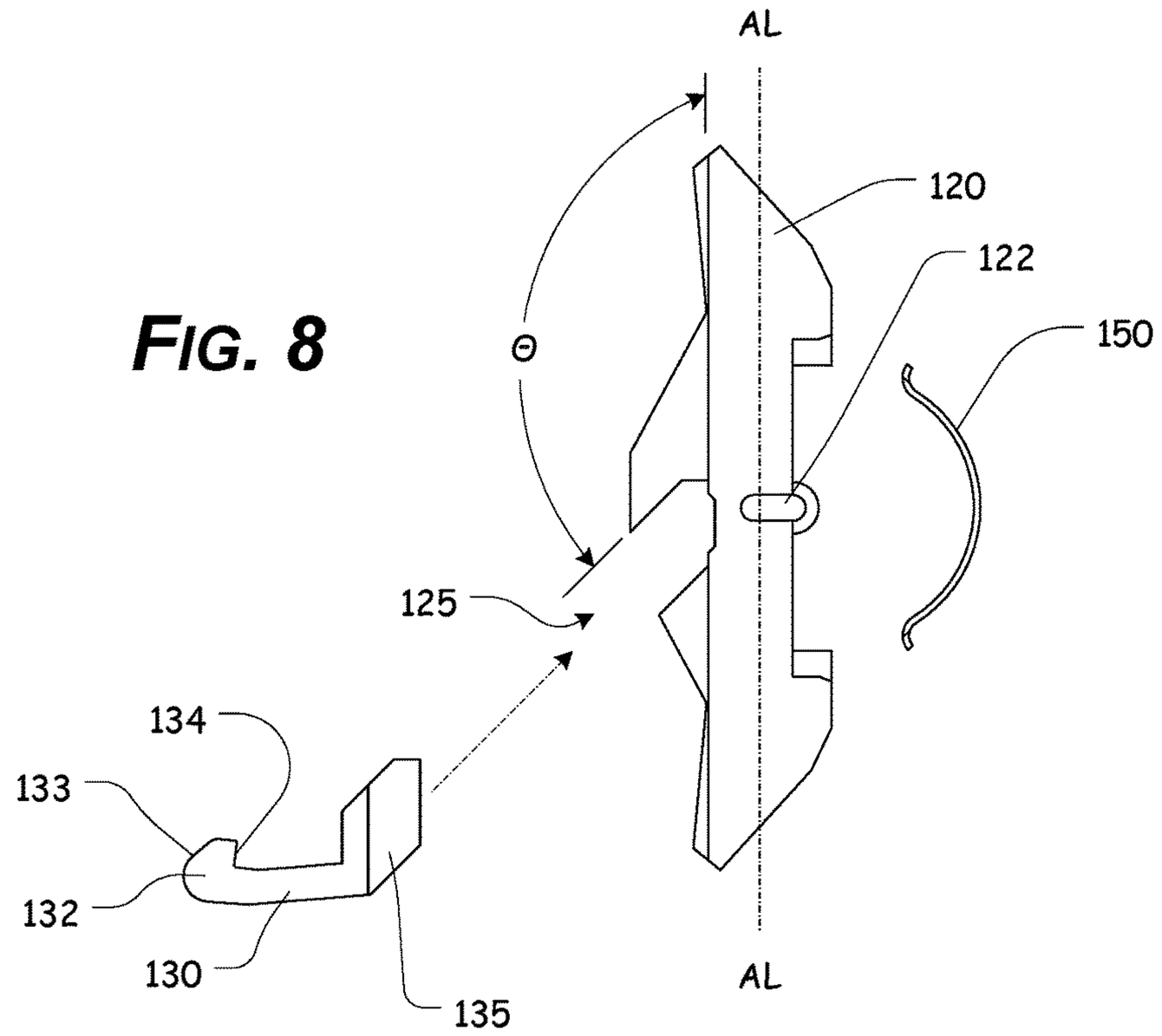


FIG. 7

FIG. 8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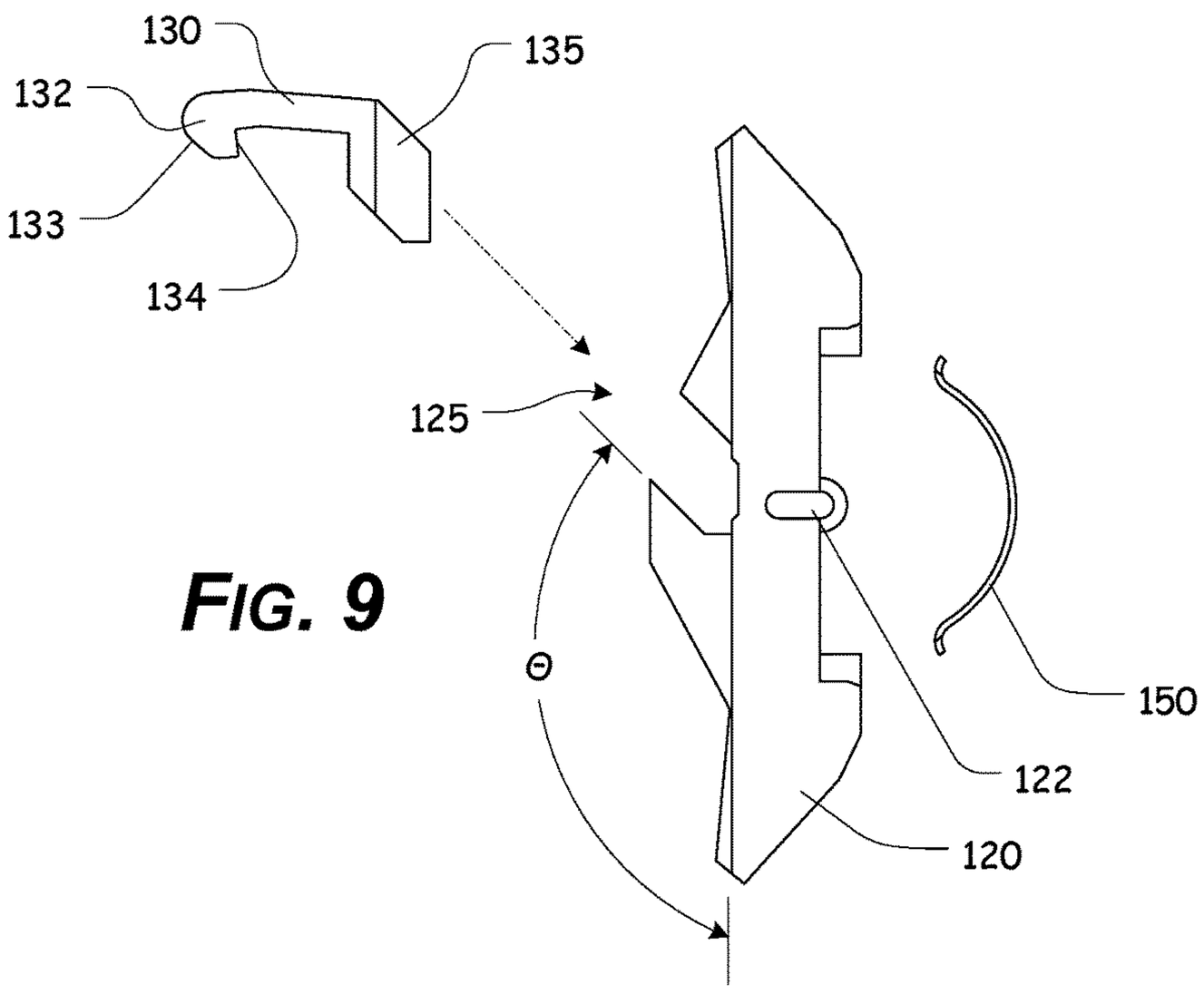
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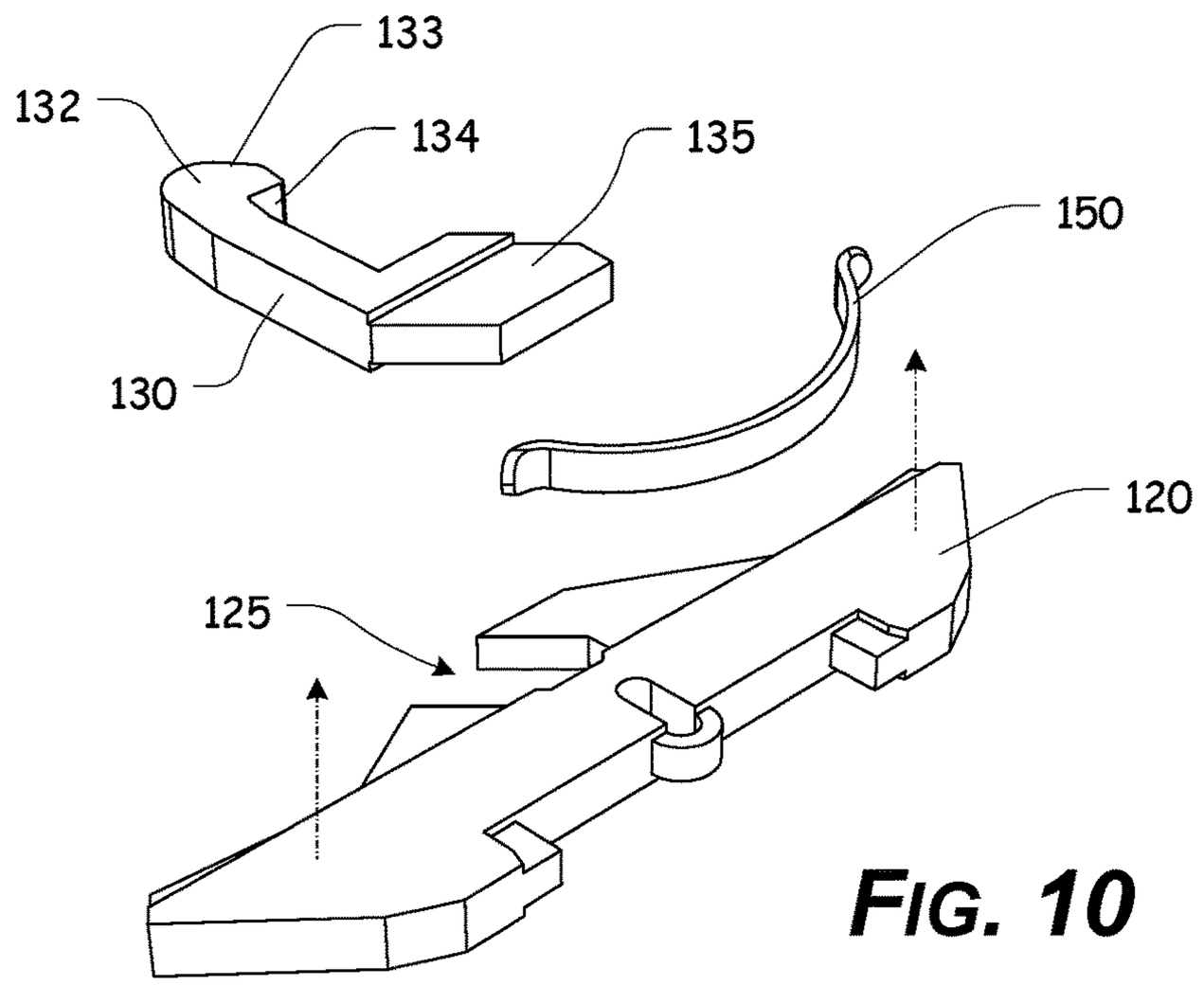

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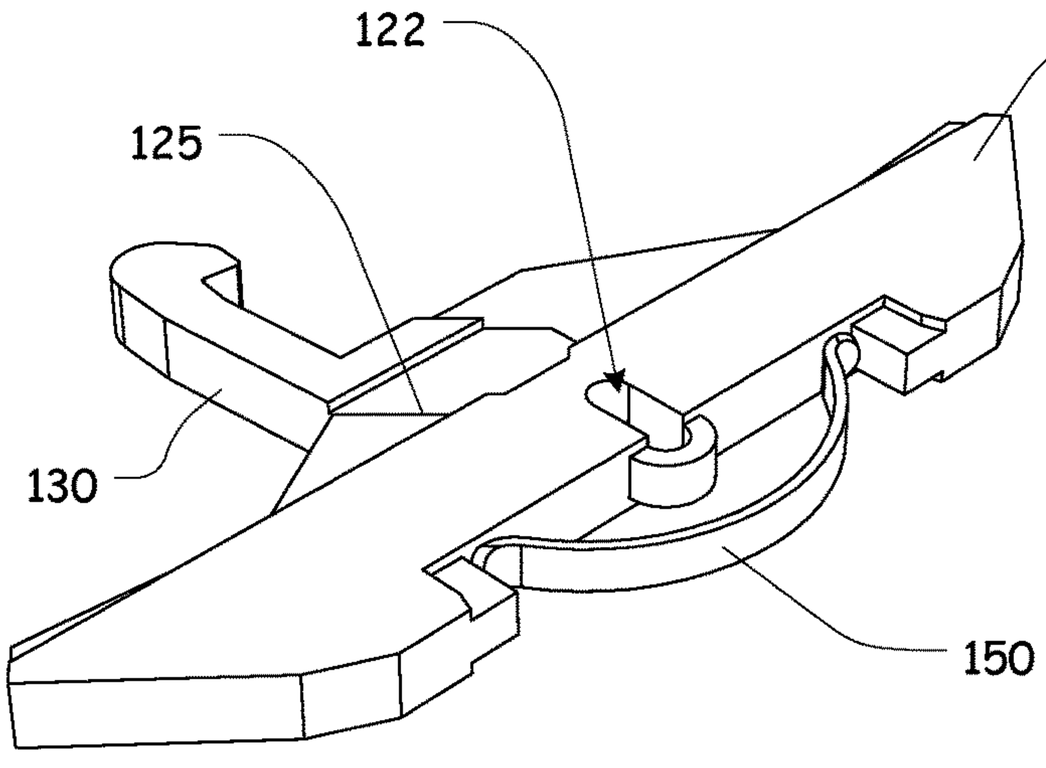

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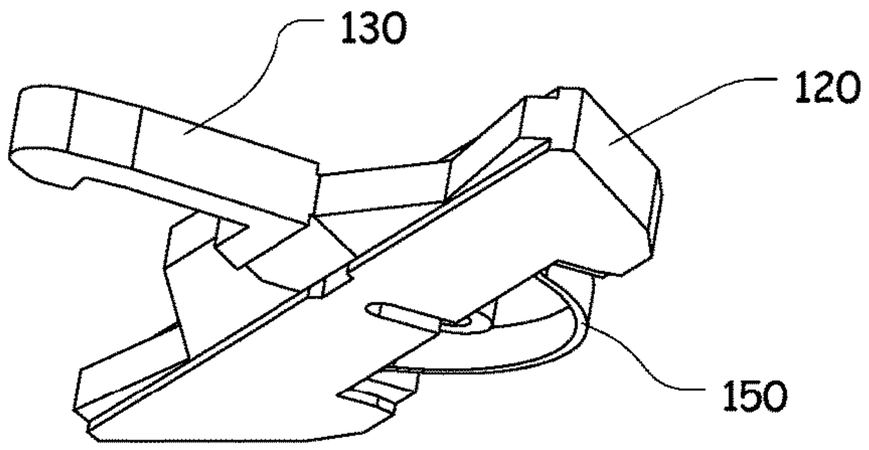

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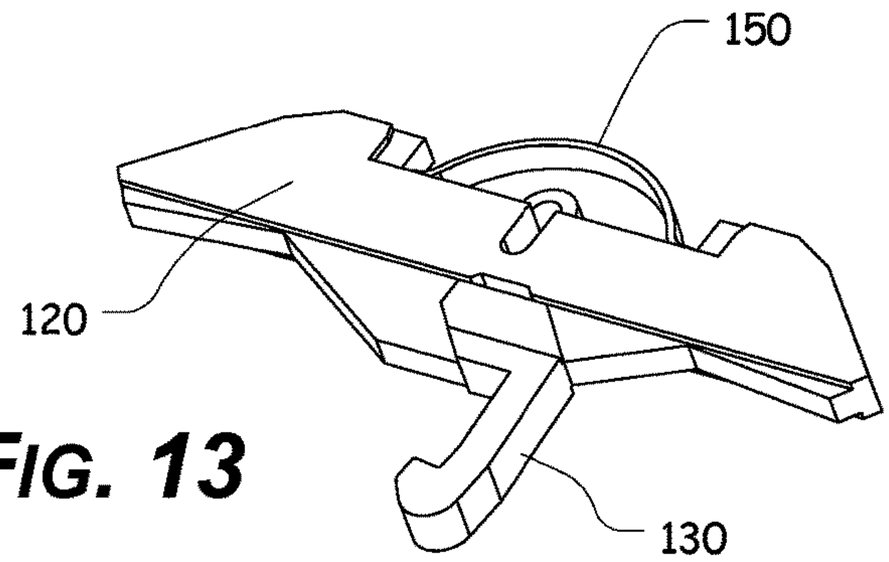

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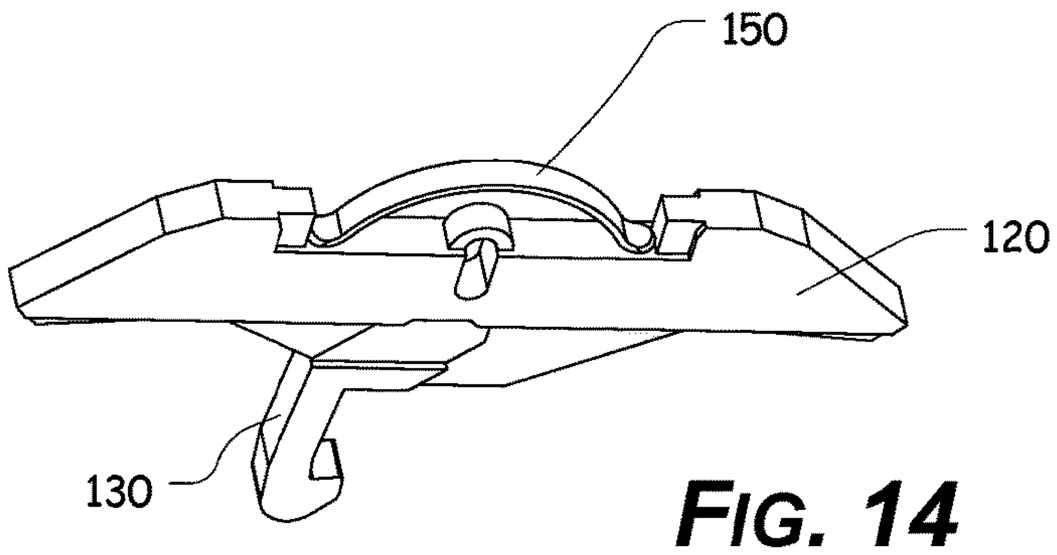

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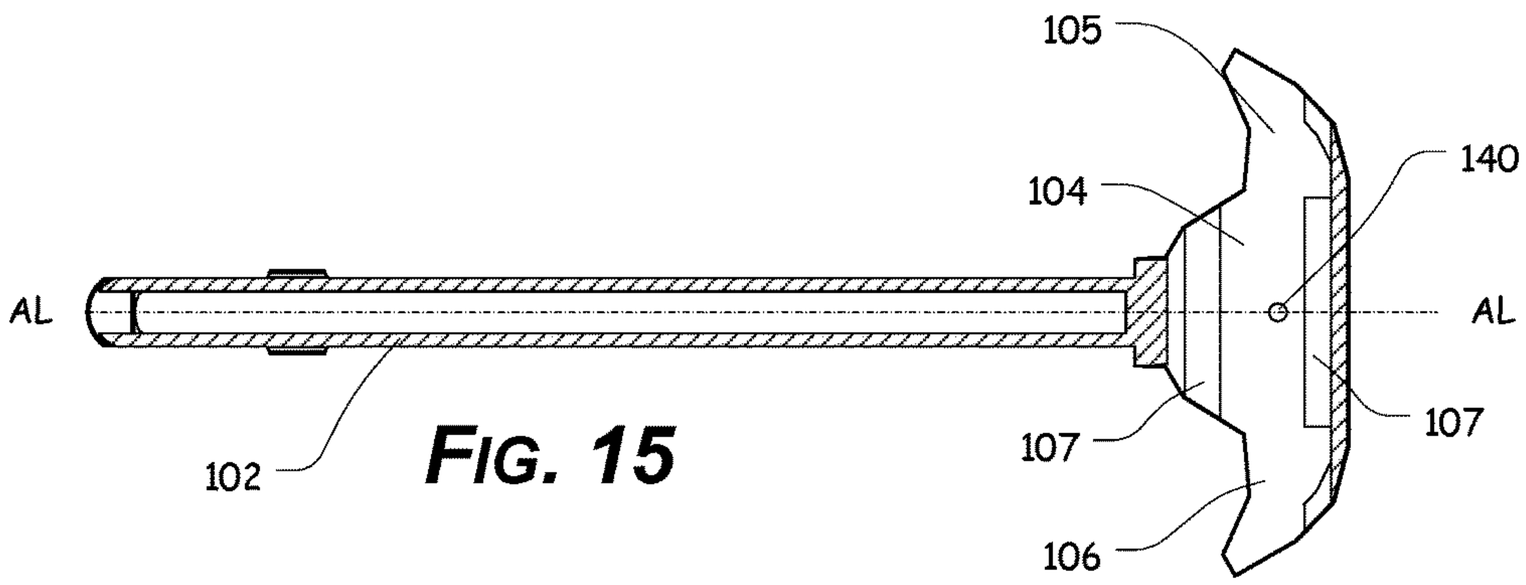

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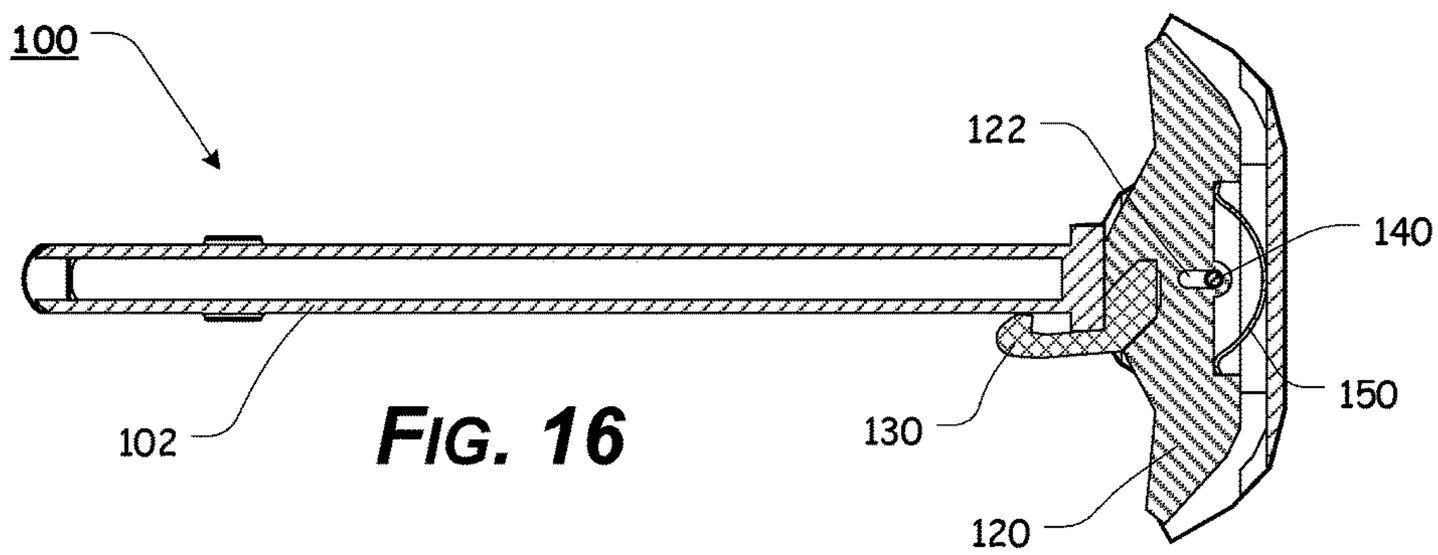

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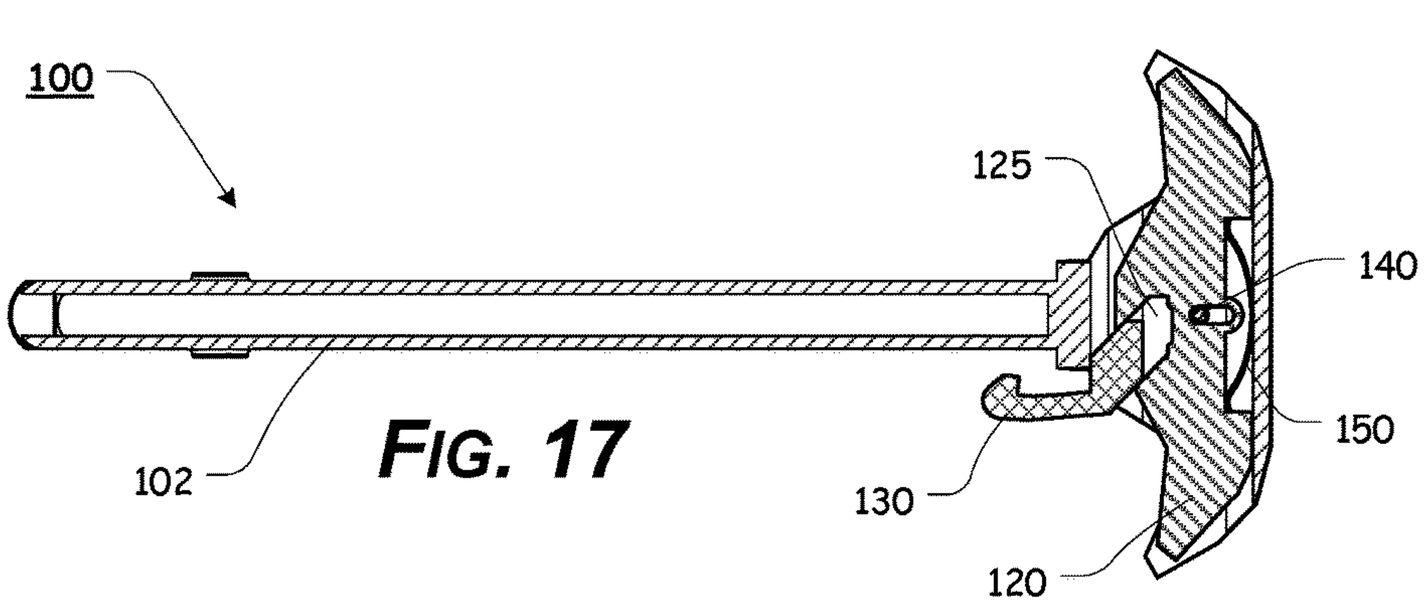

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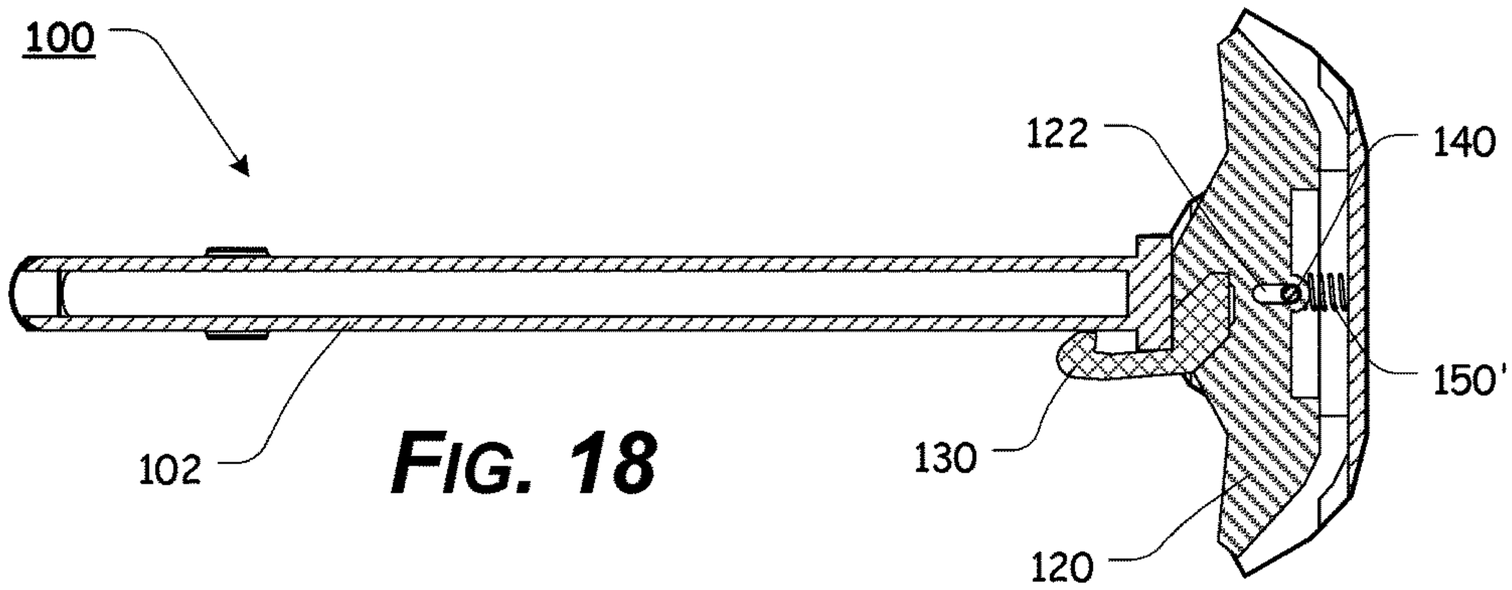

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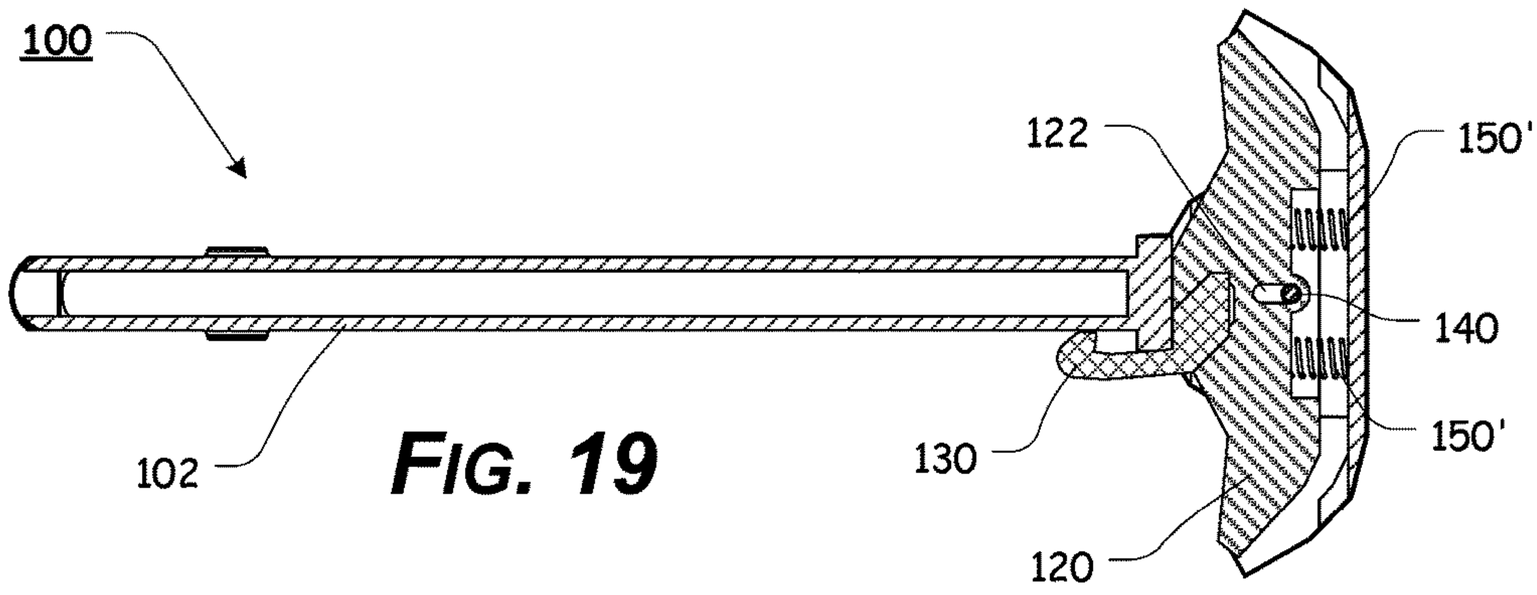

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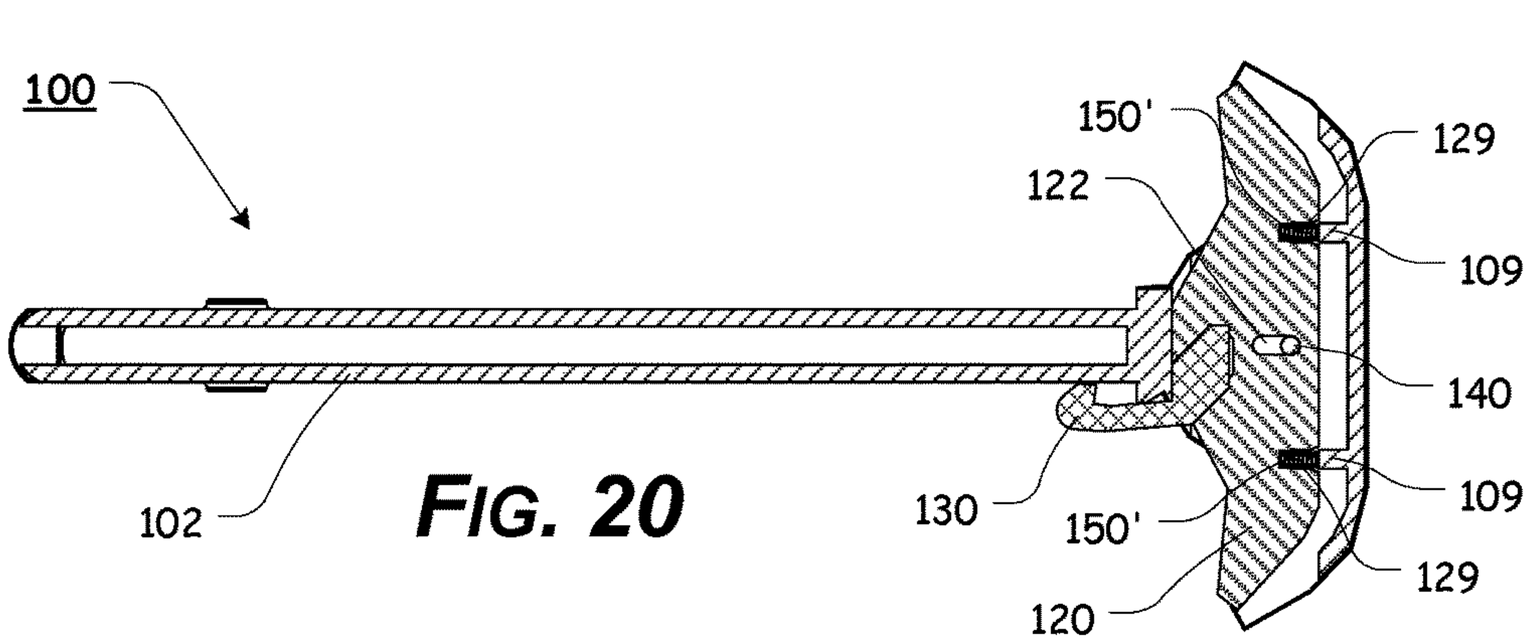

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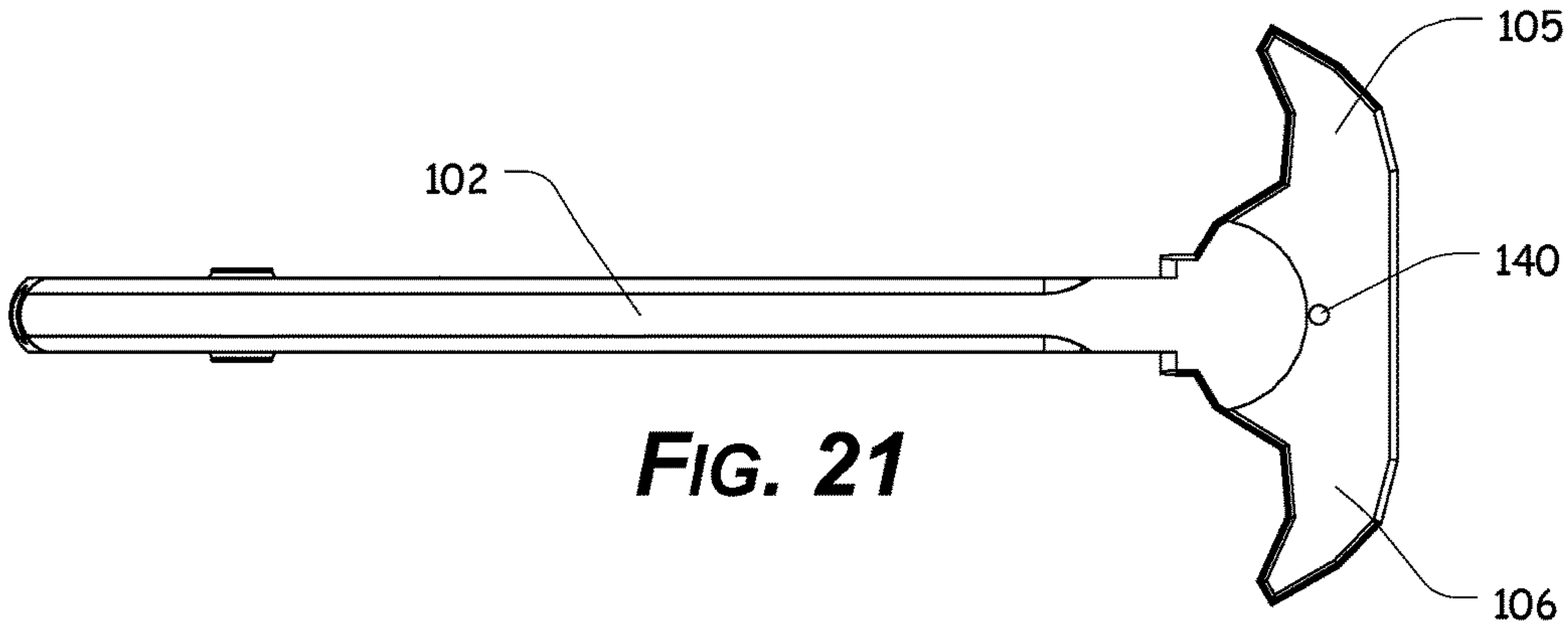

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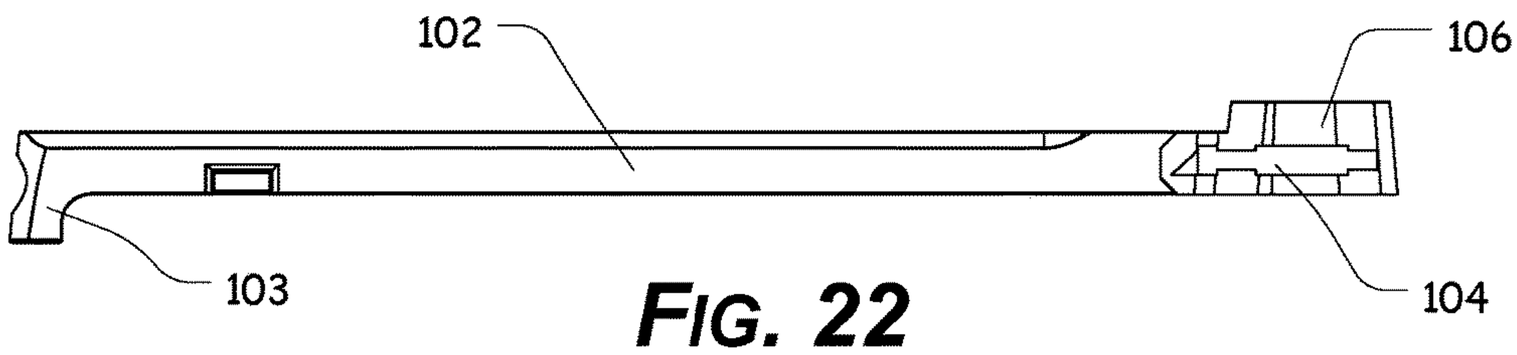

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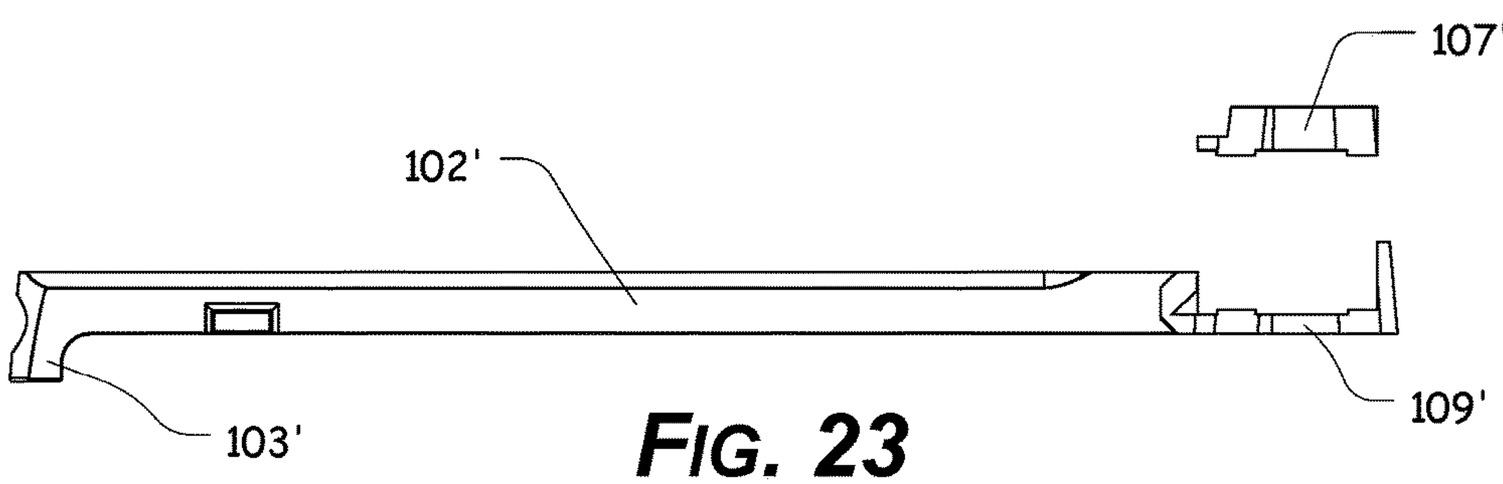

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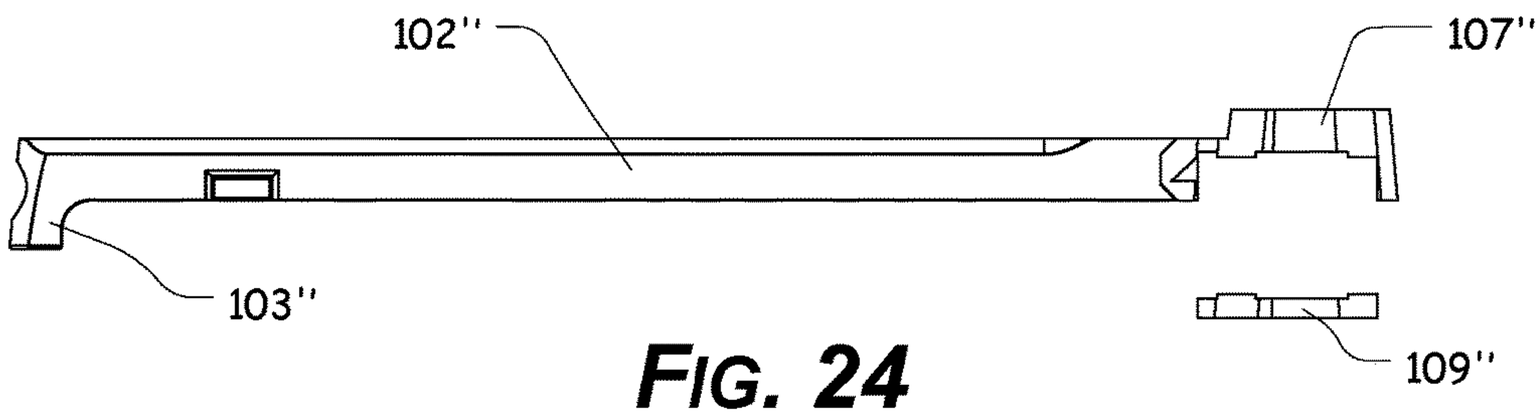

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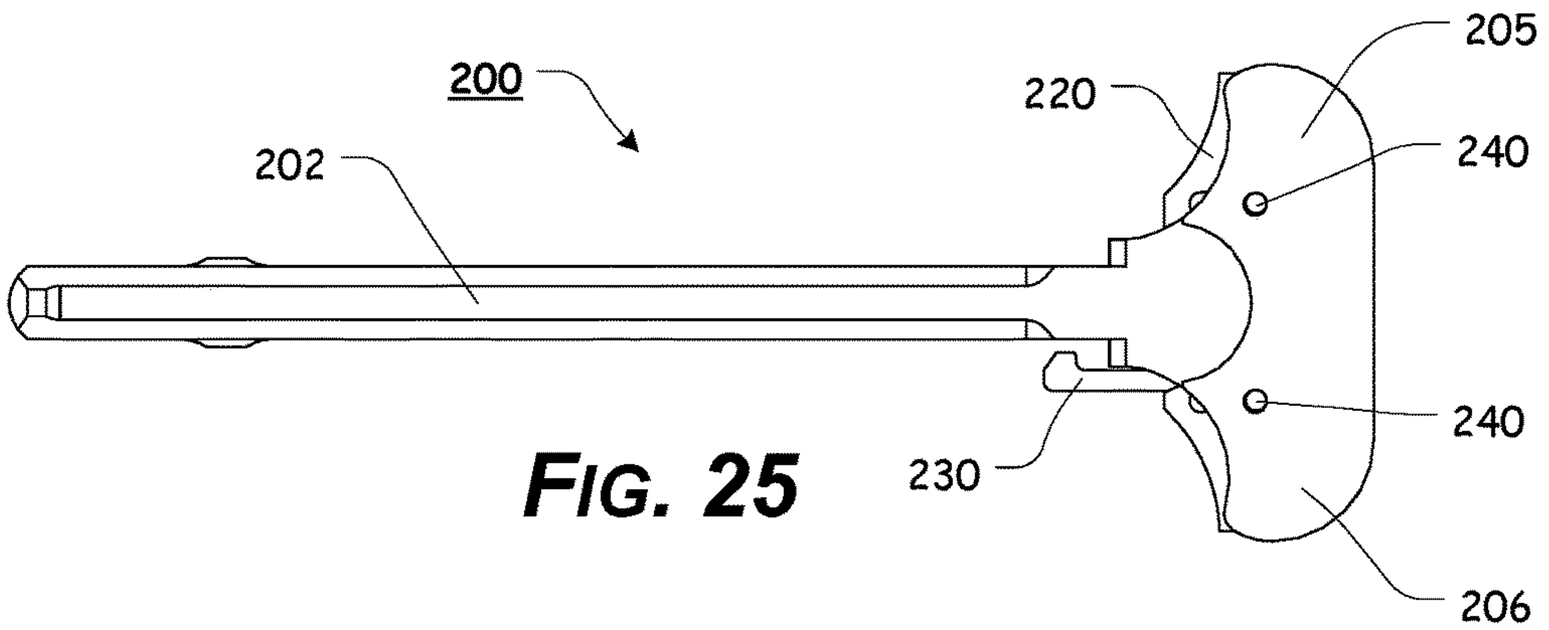

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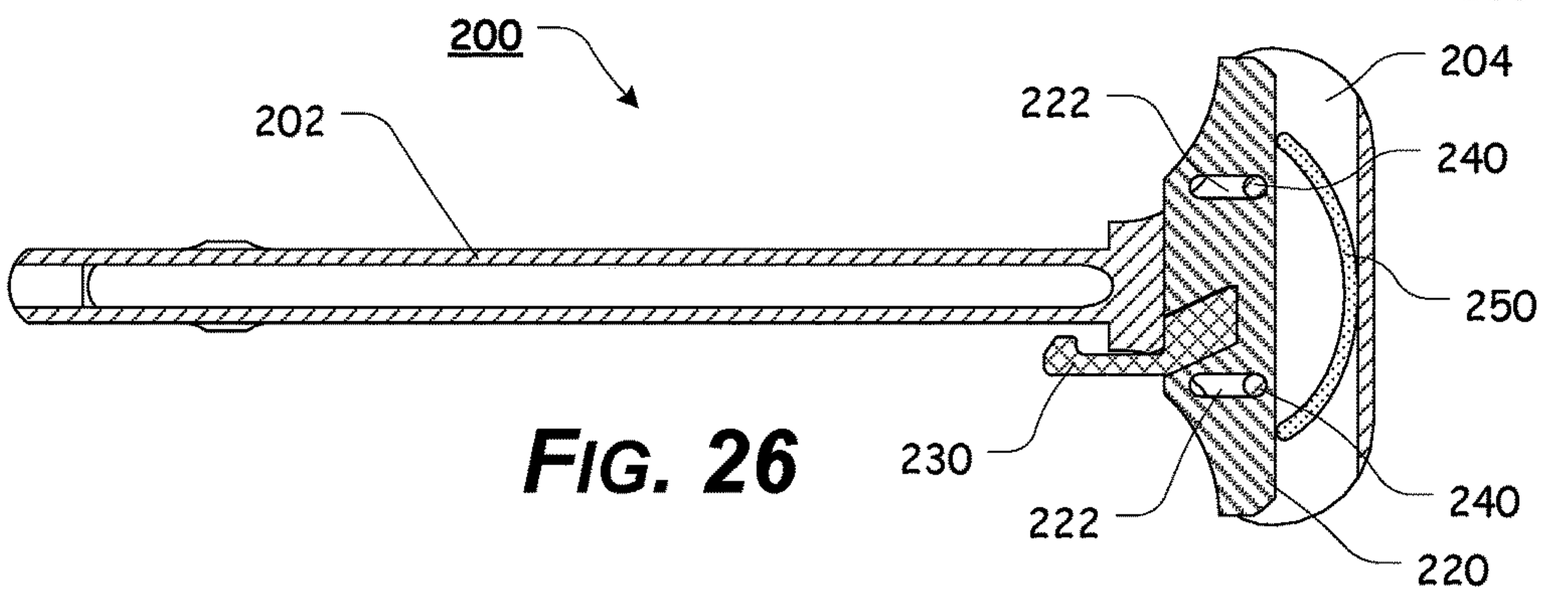

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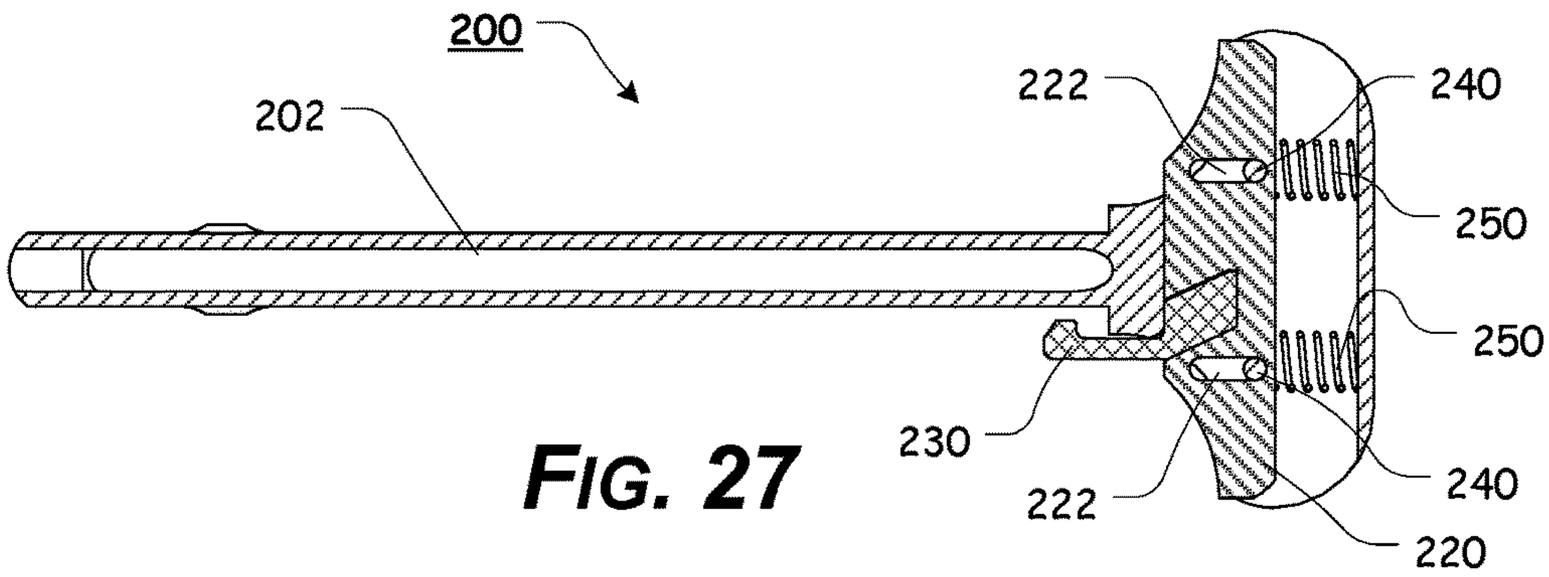

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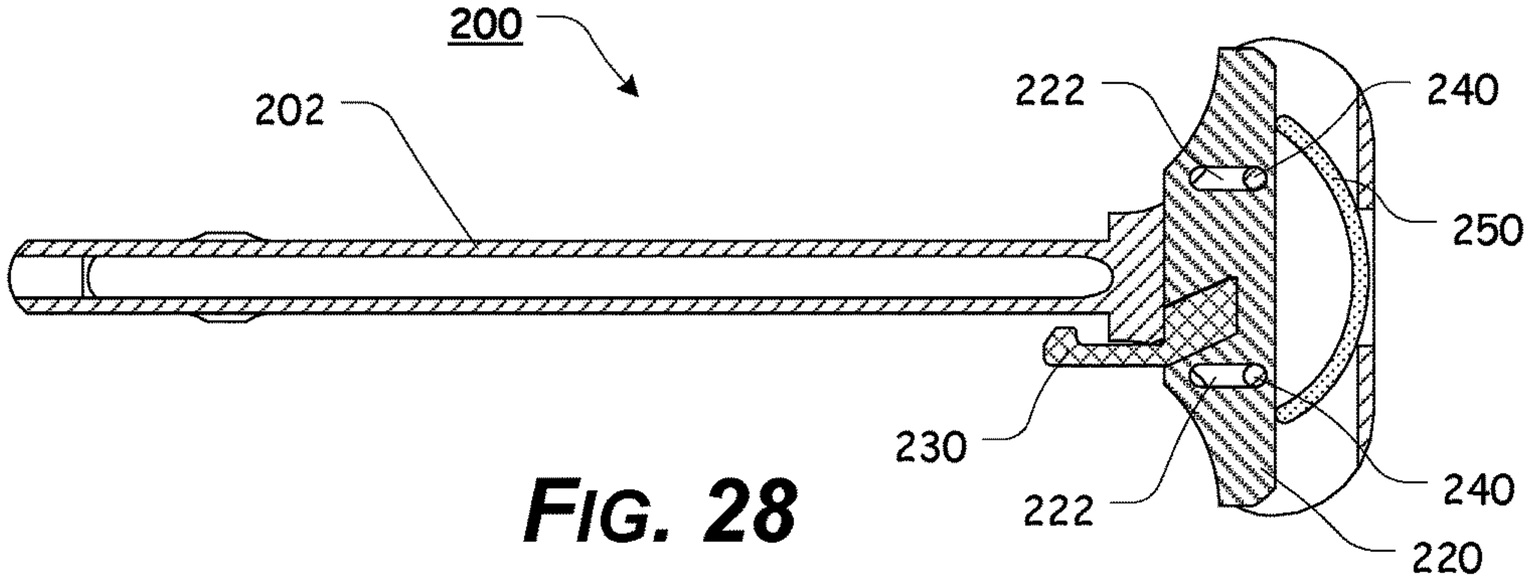


FIG. 28

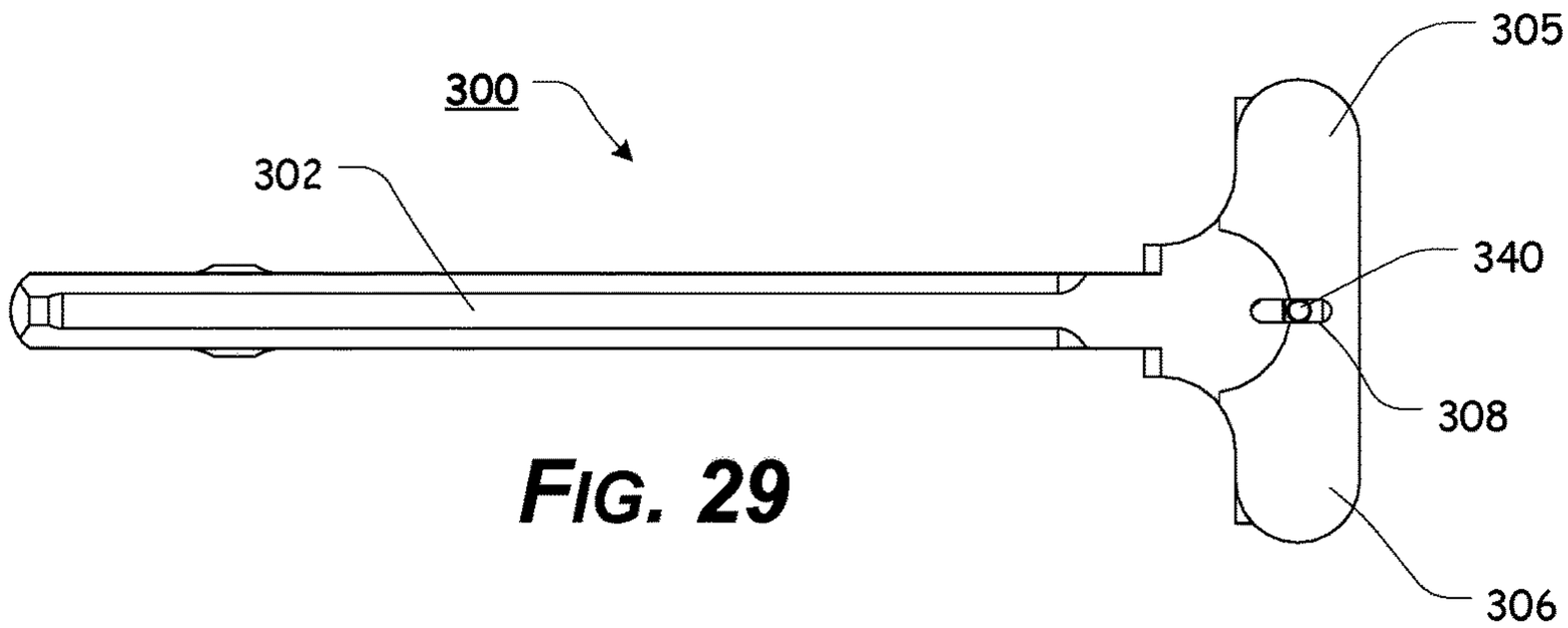
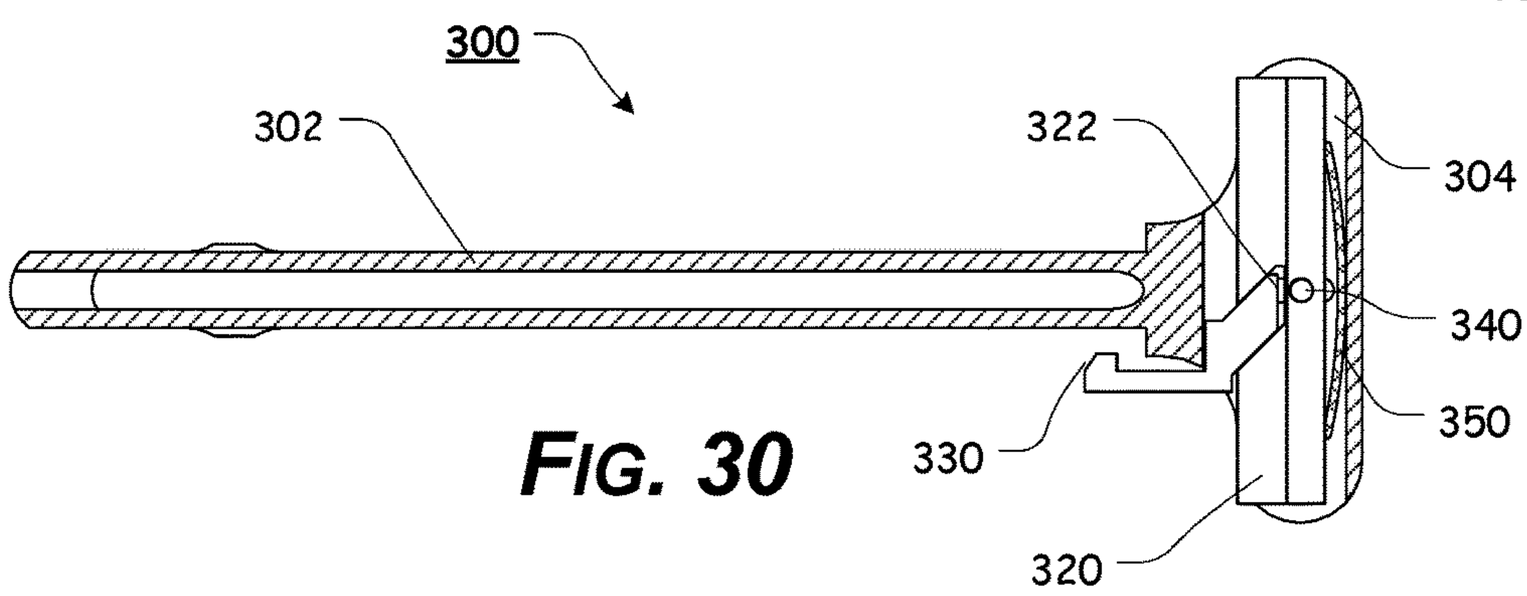


FIG. 29



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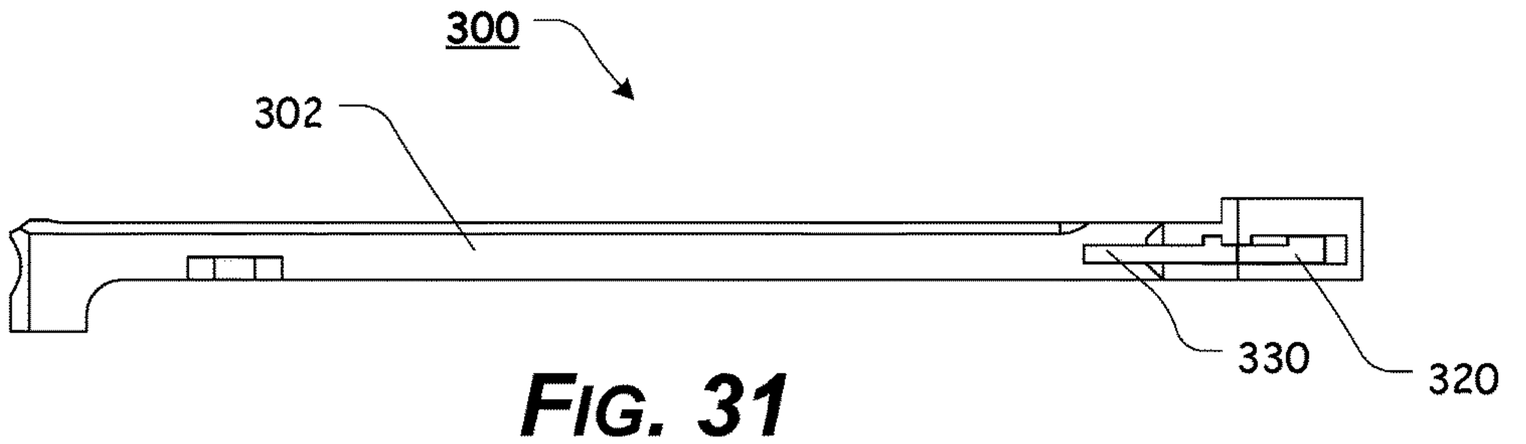

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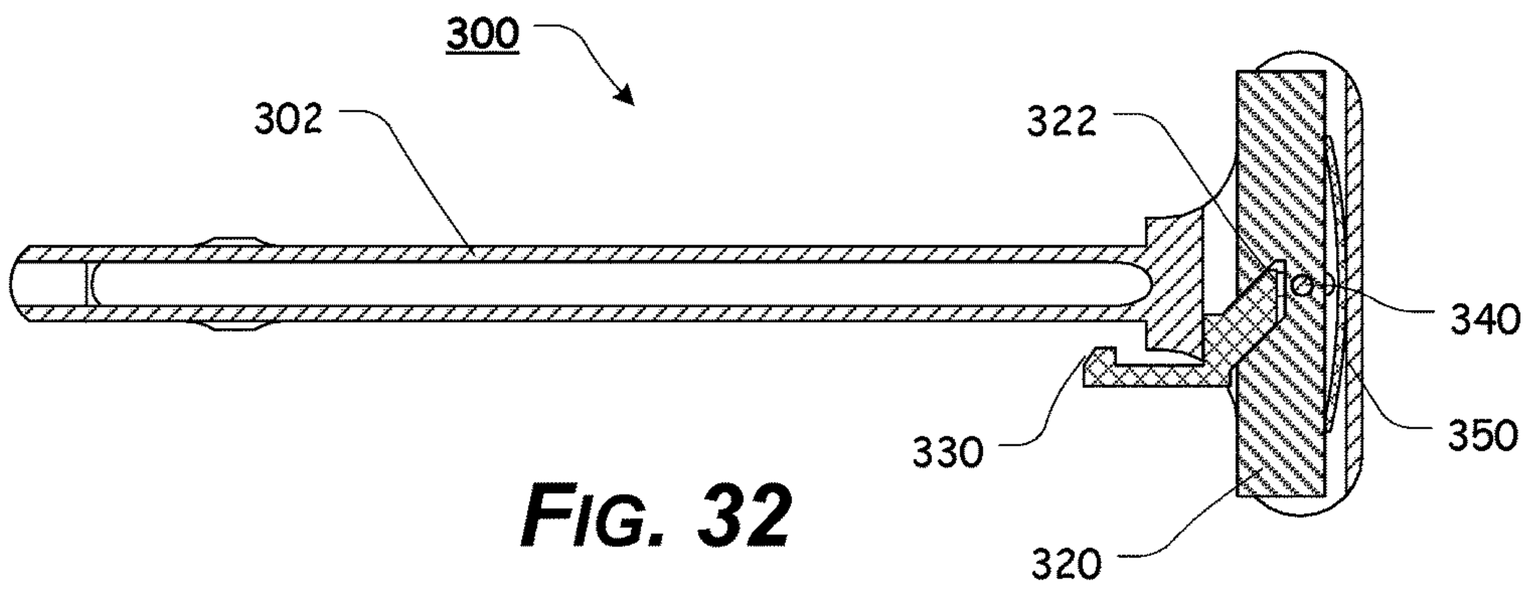

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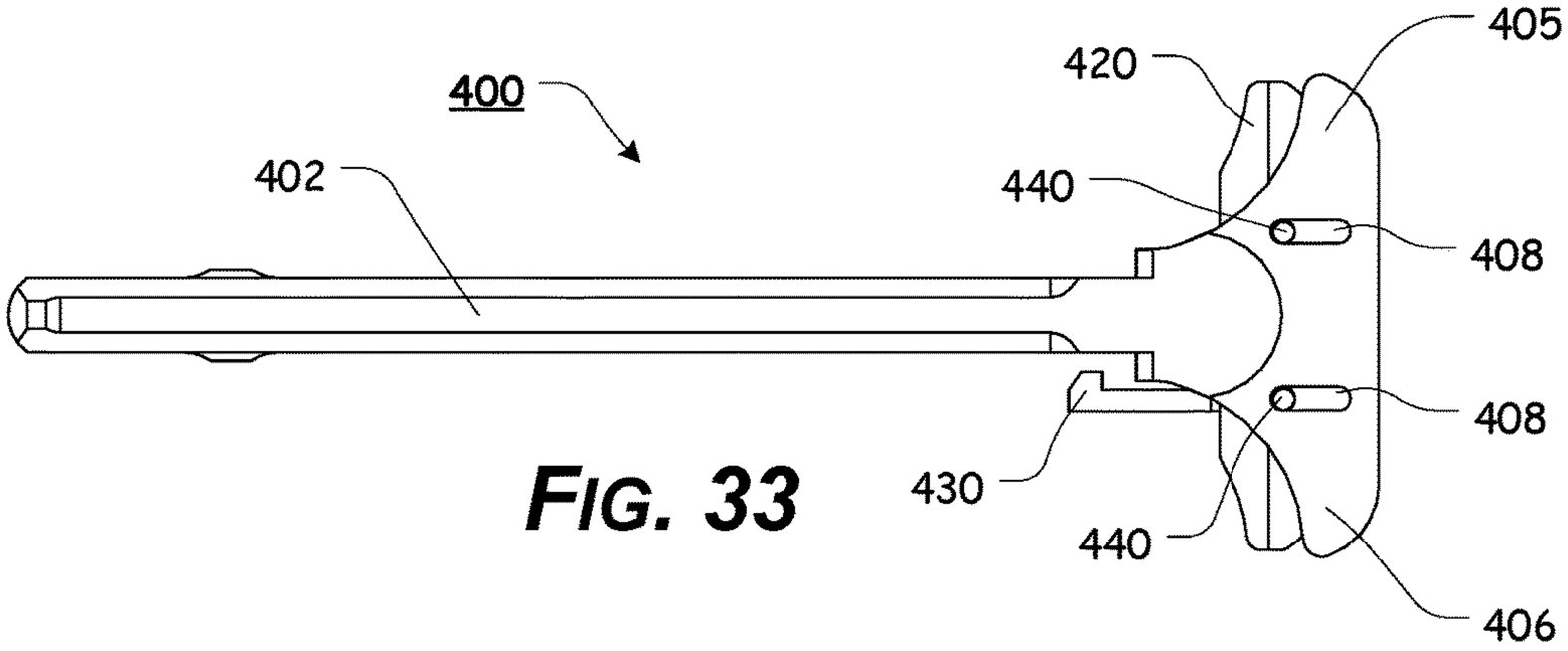
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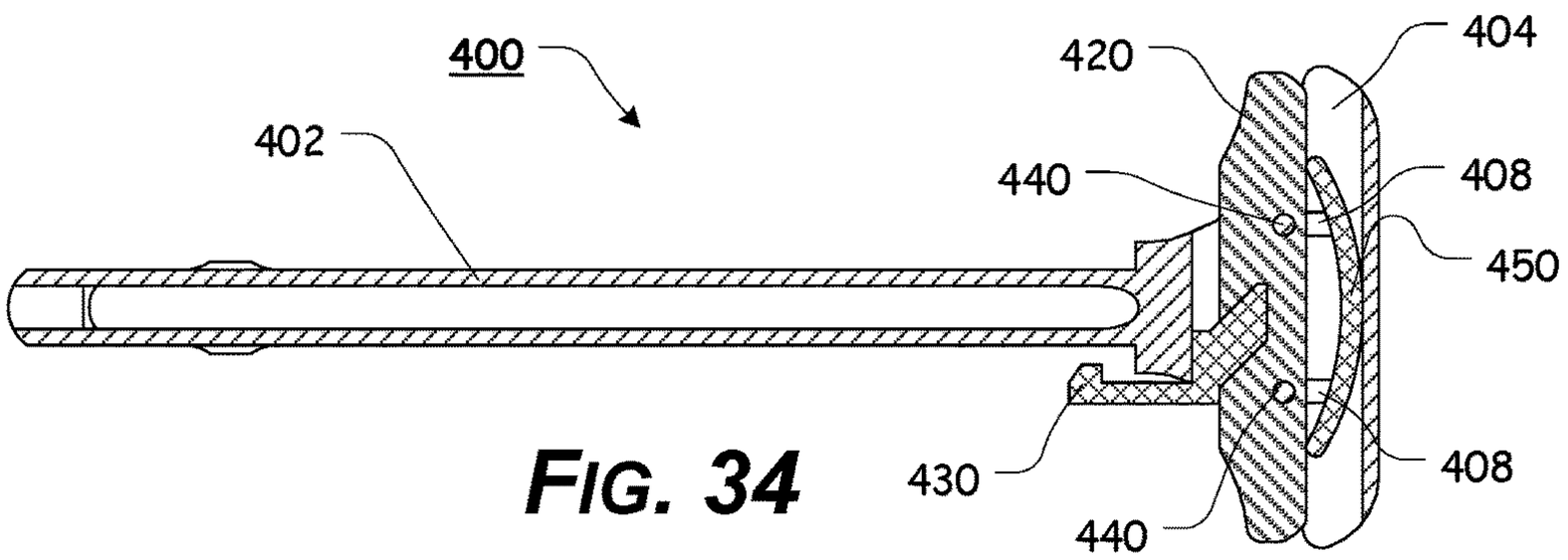
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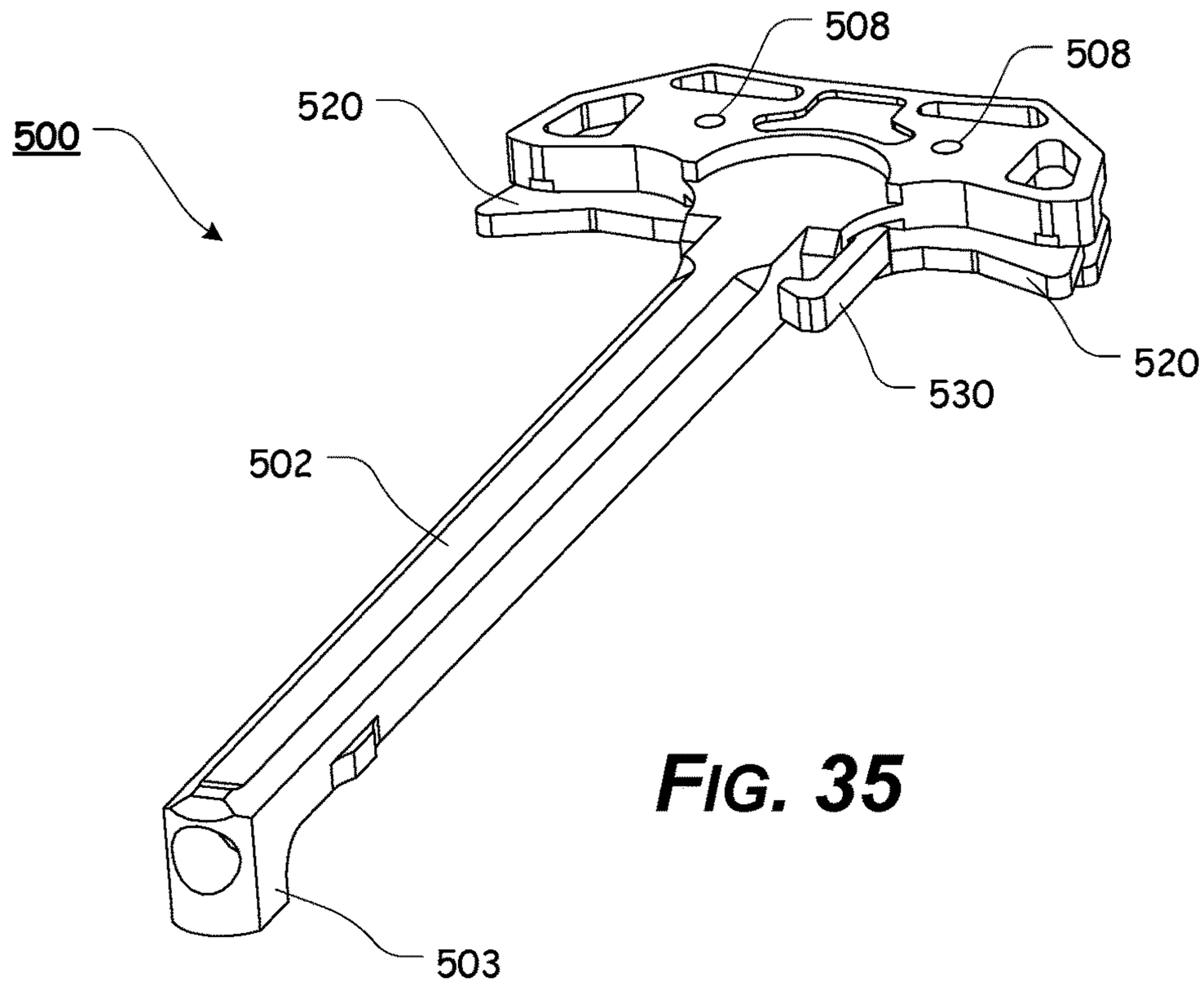

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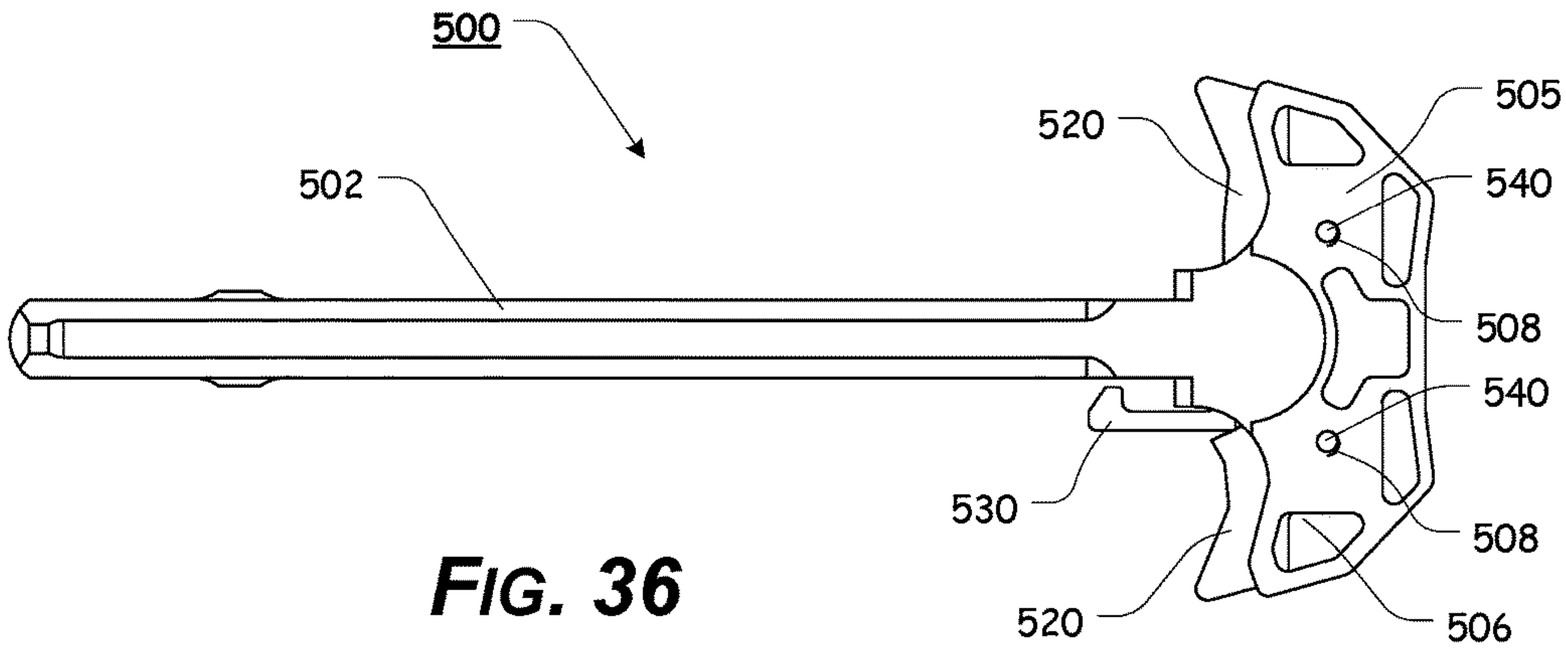
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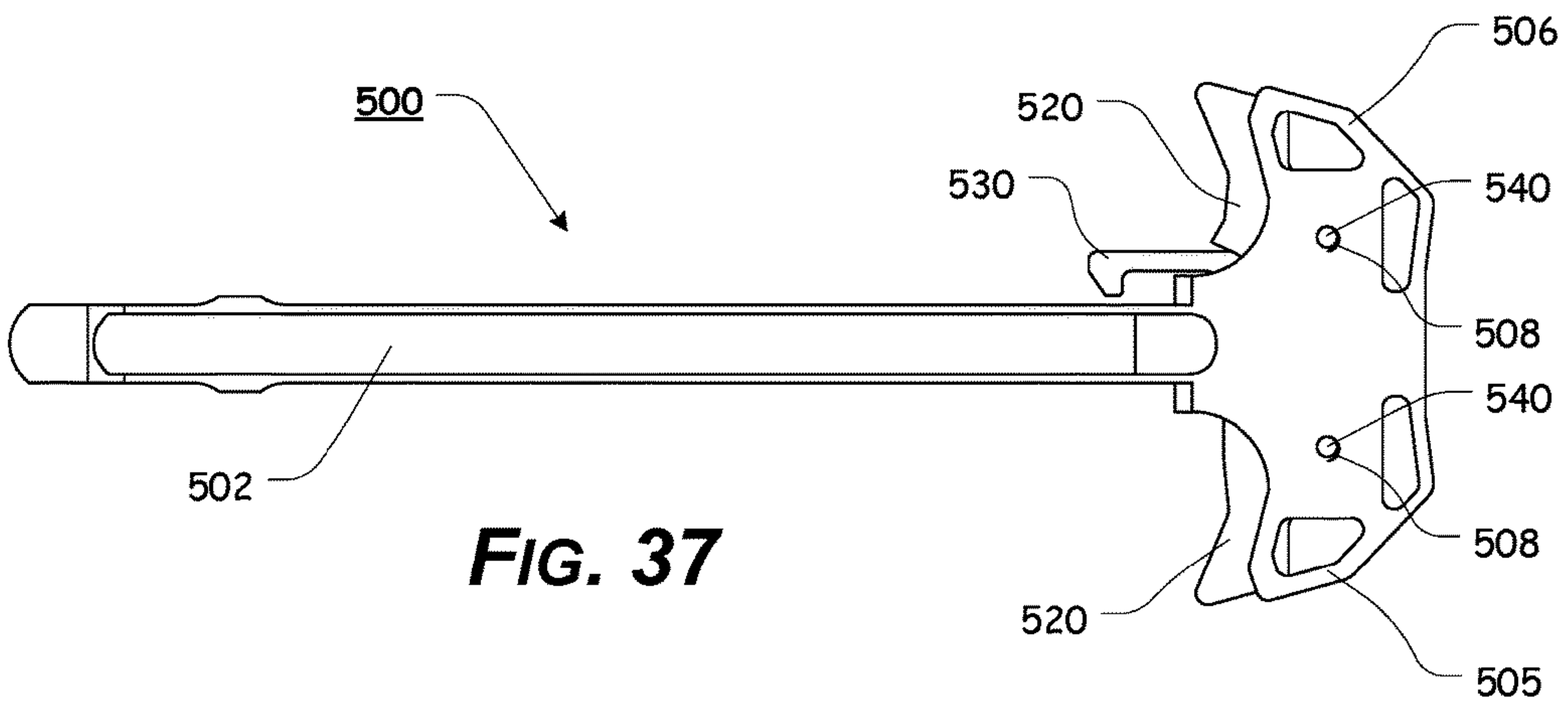
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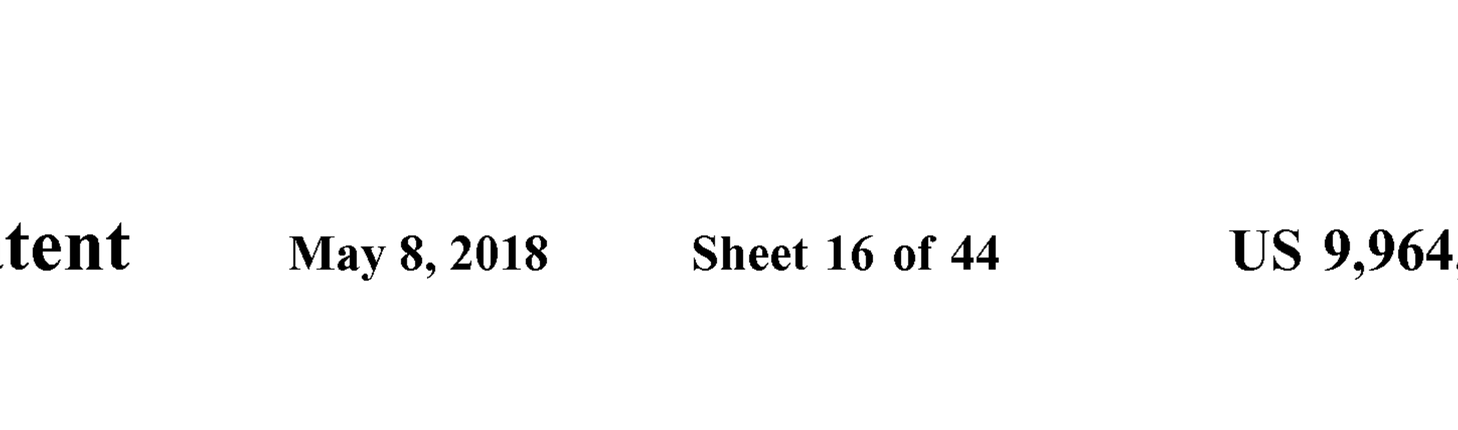


FIG. 38

FIG. 39

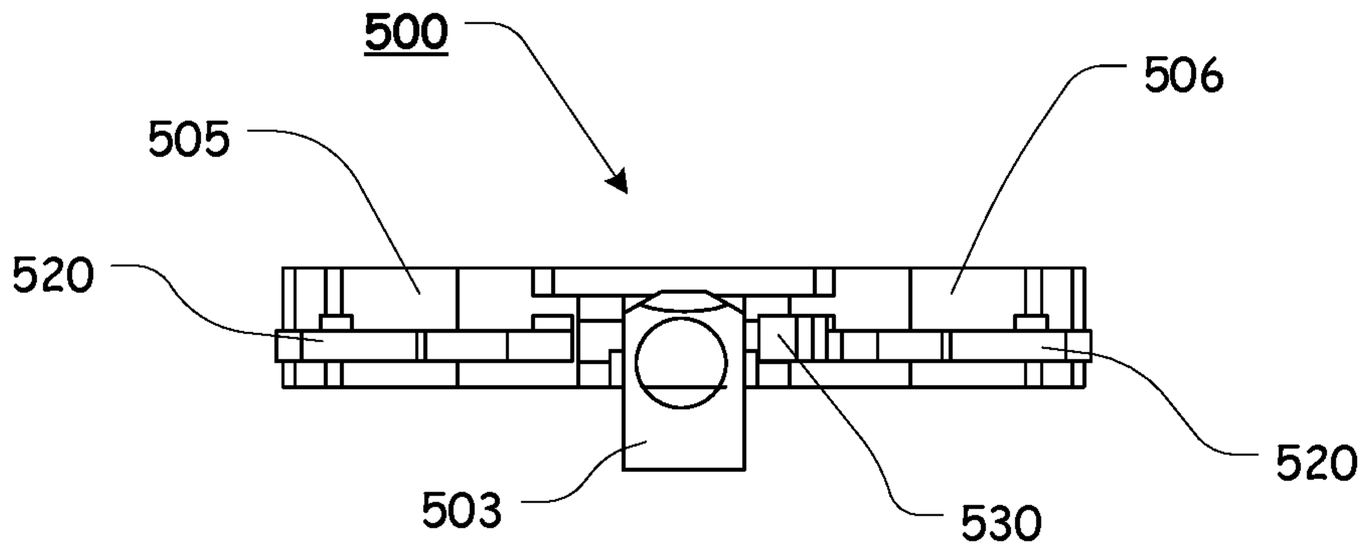
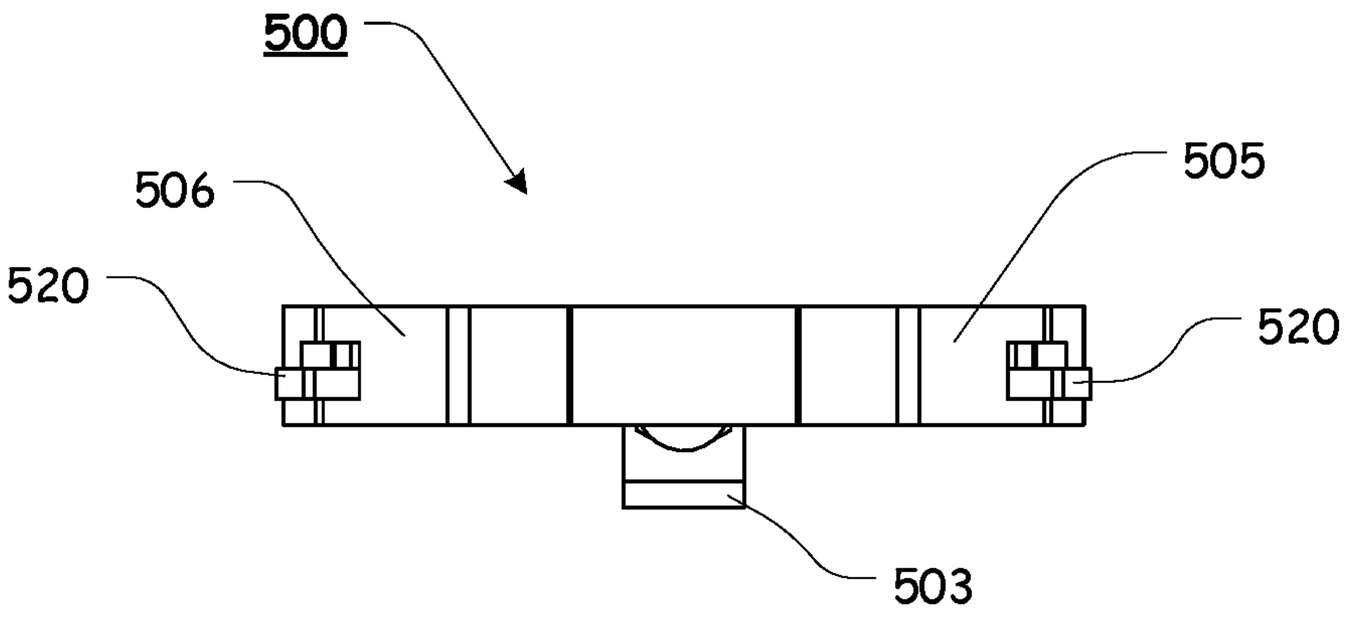


FIG. 40



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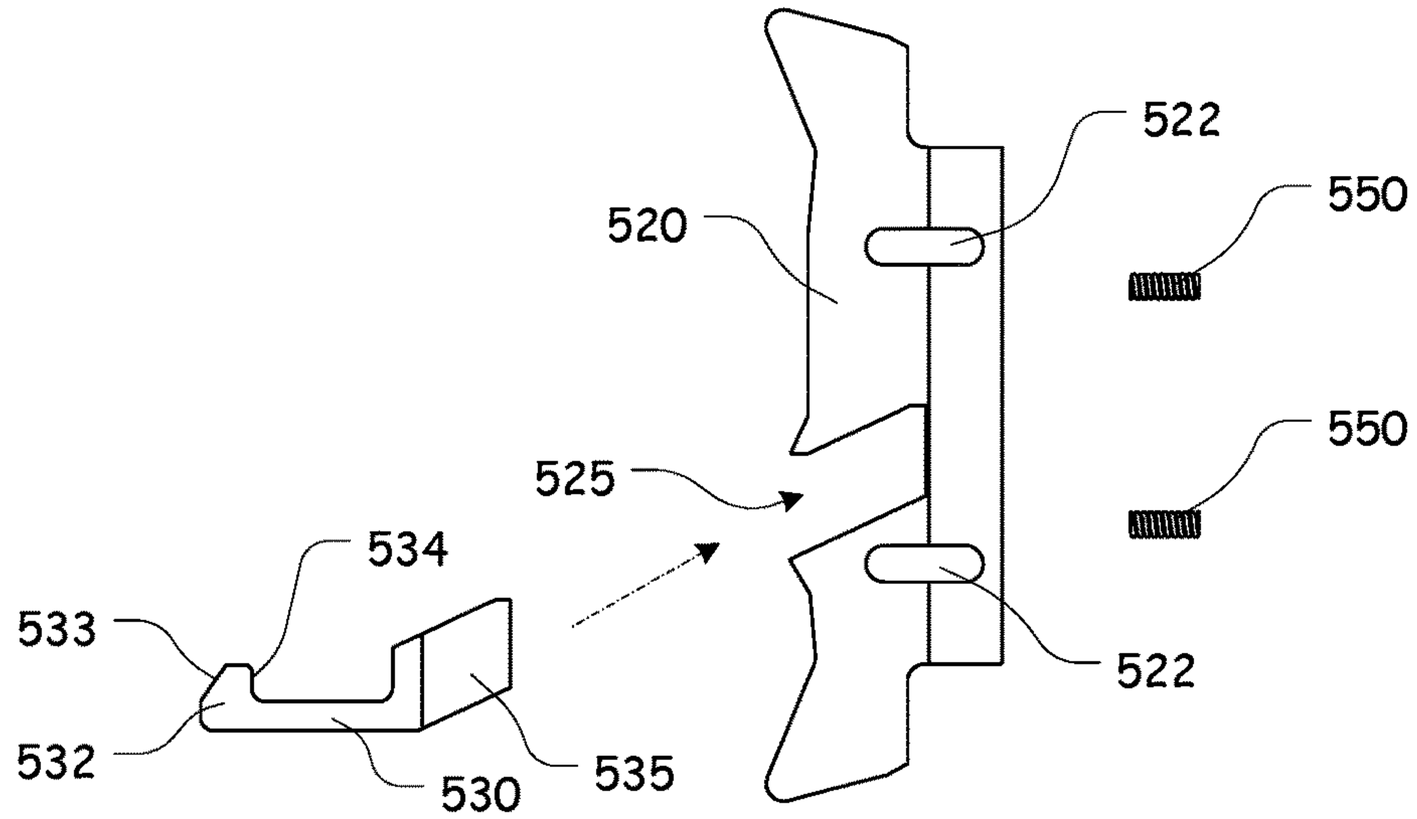
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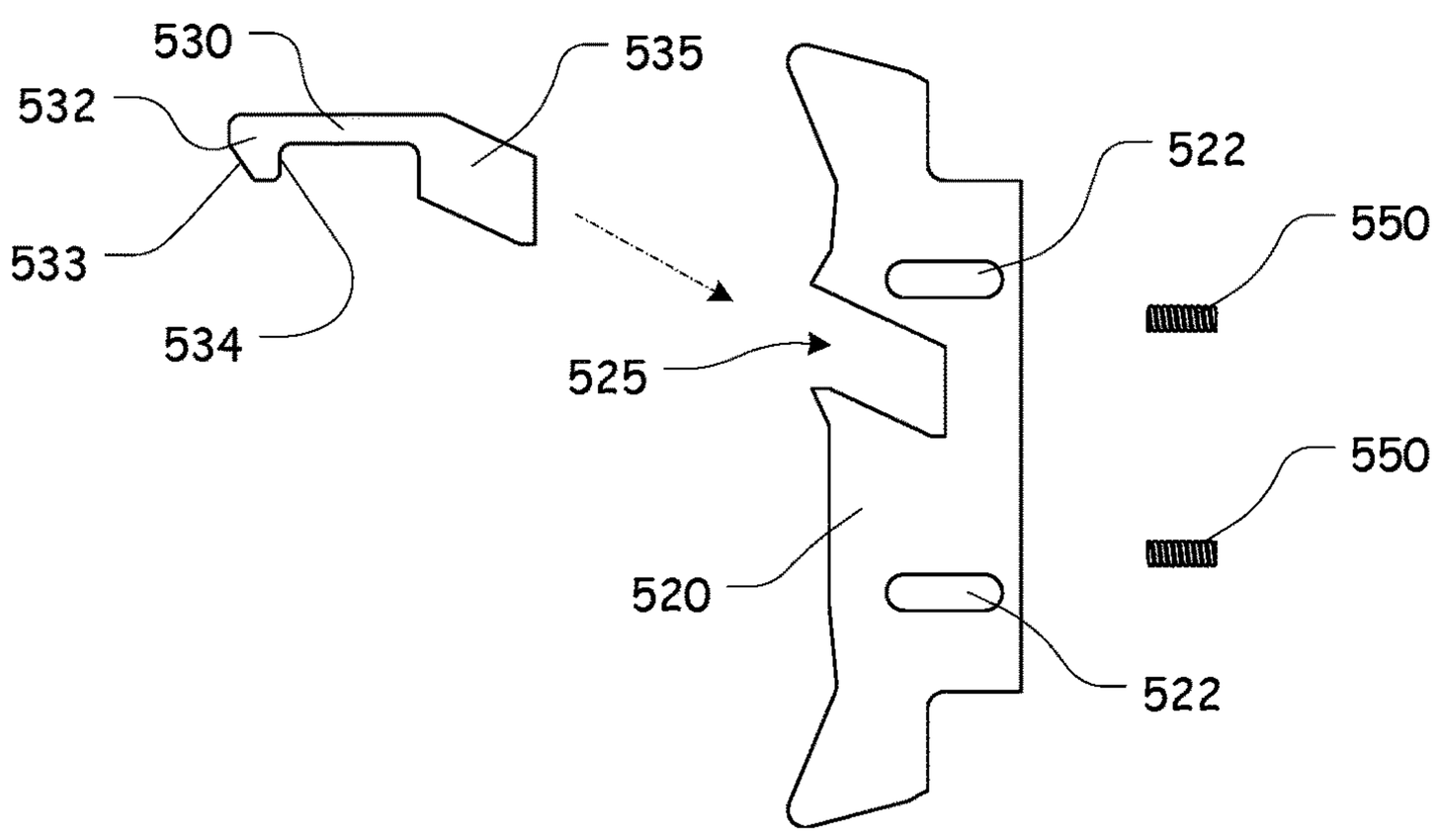
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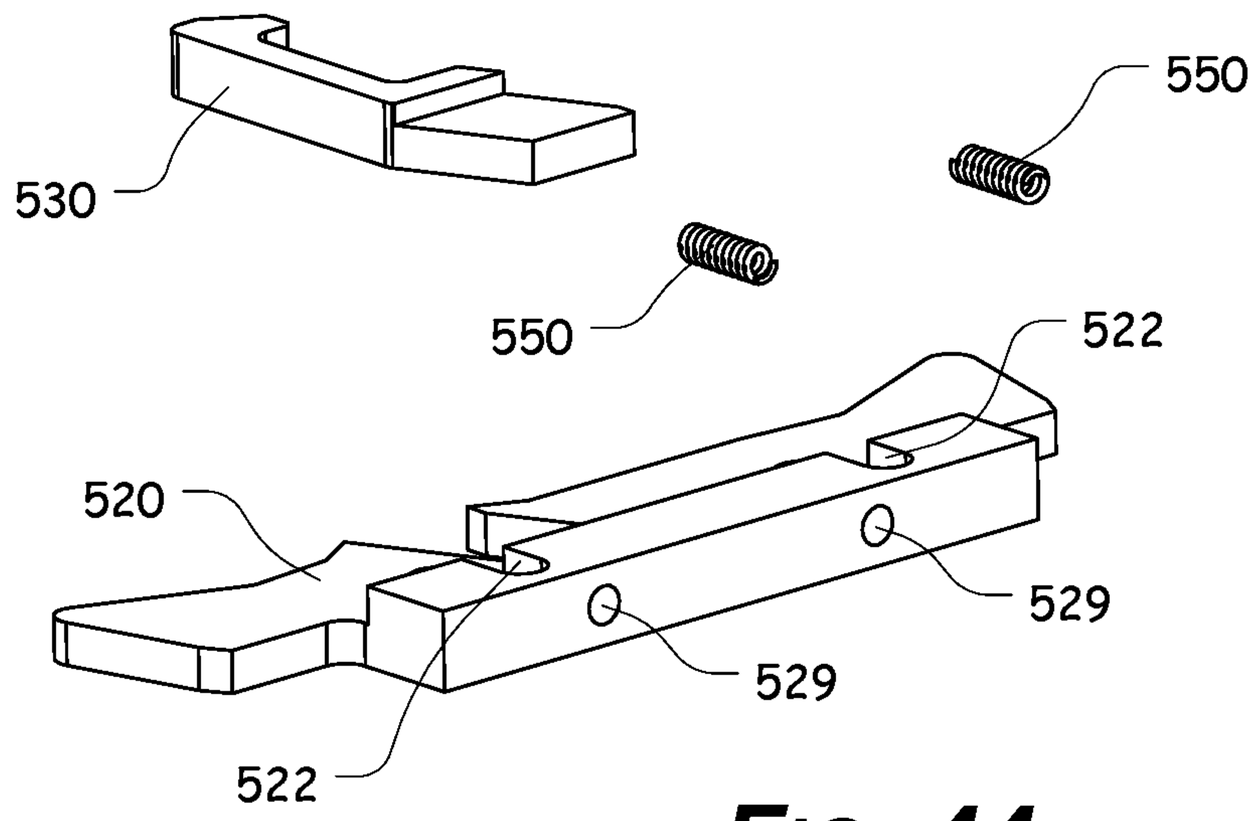
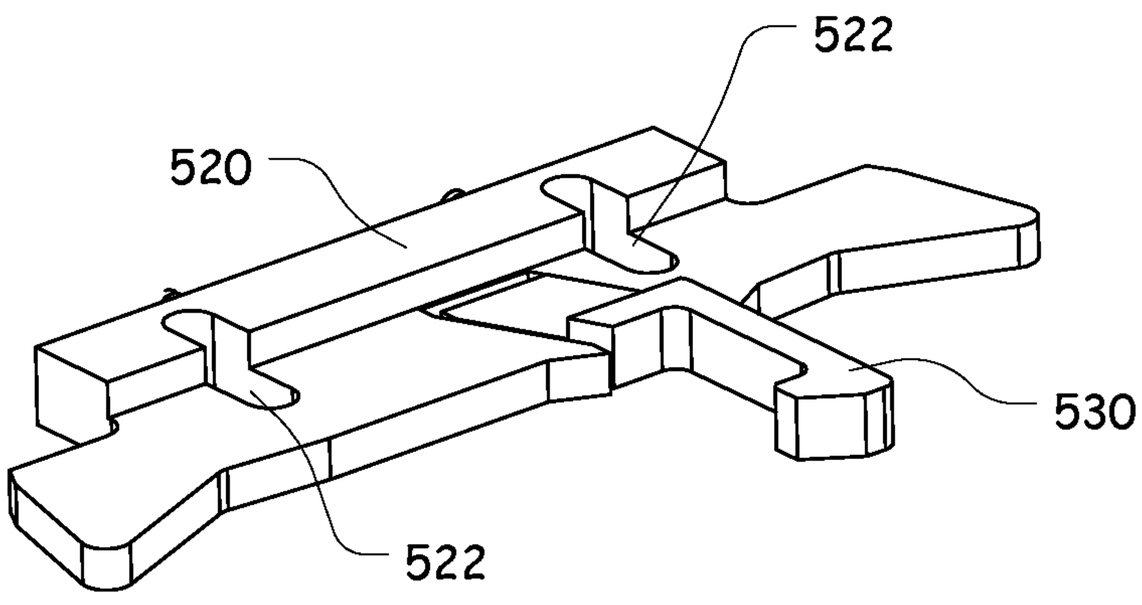


FIG. 44



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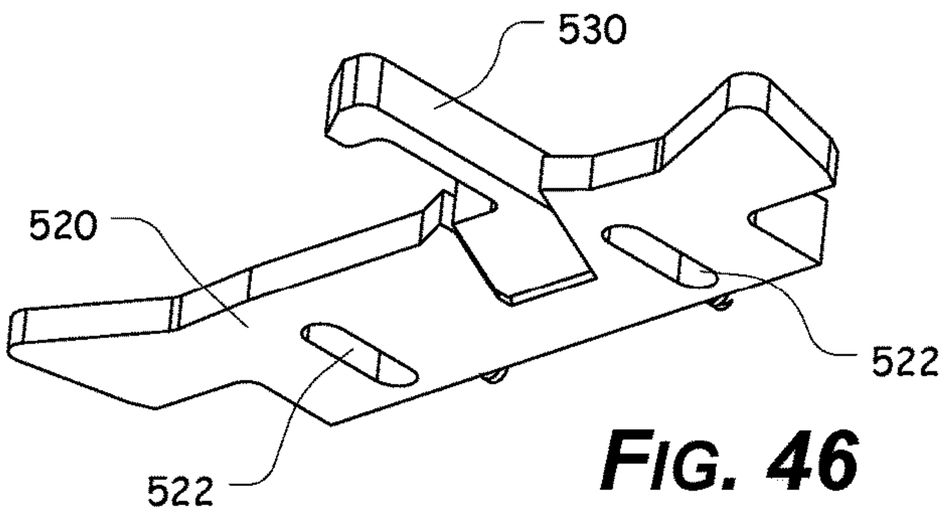

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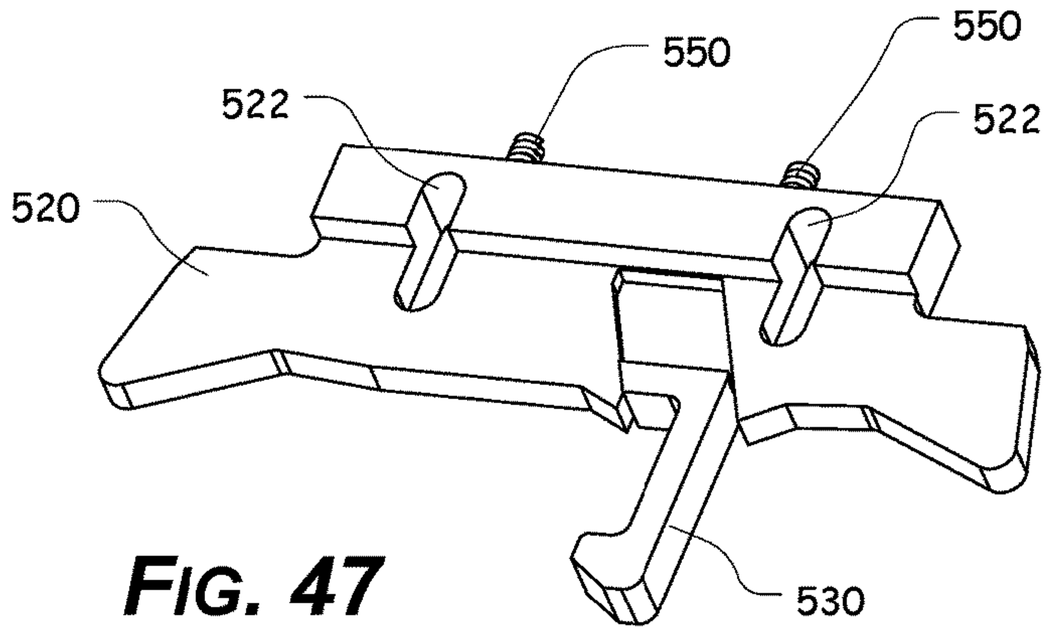


FIG. 47

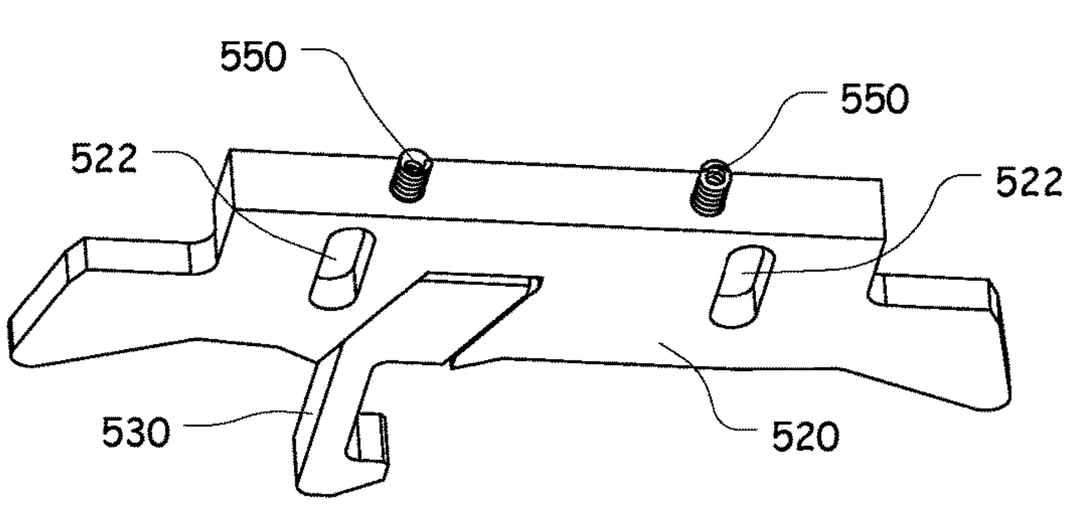
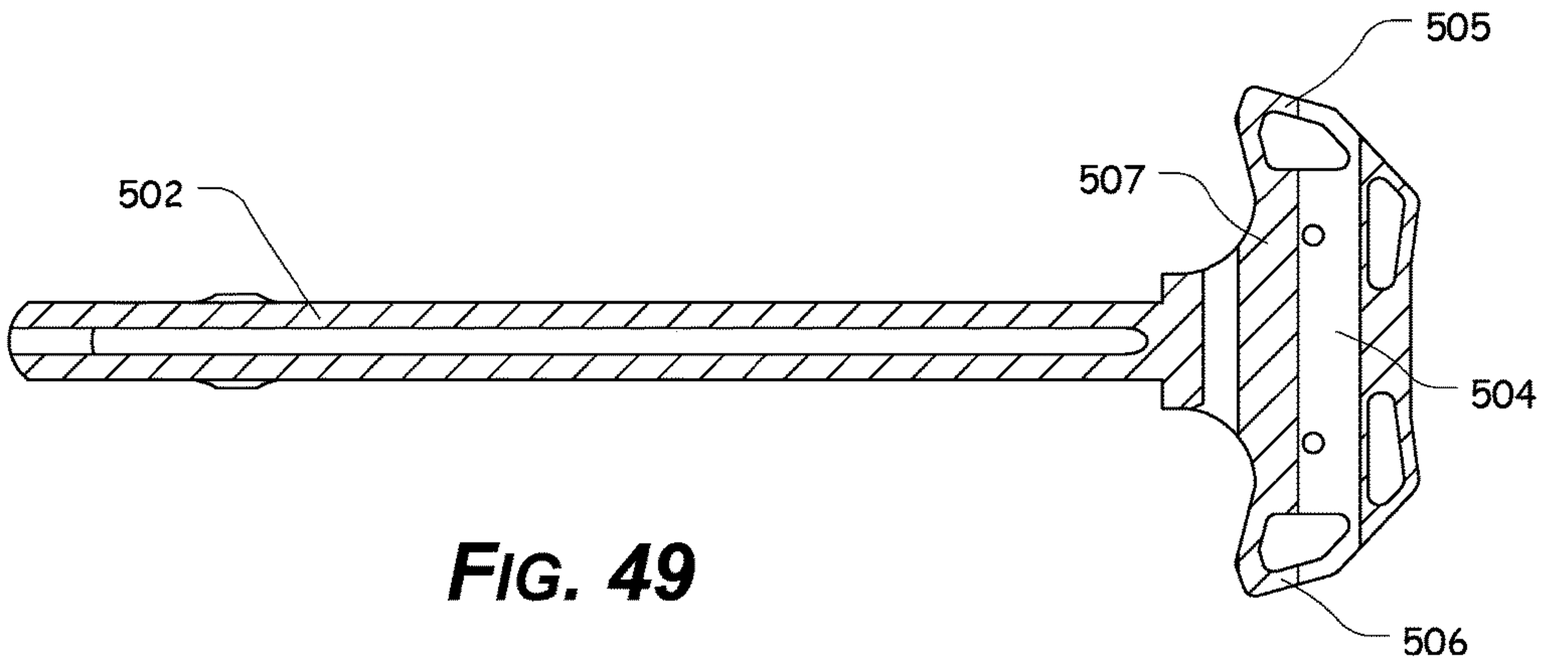


FIG. 48



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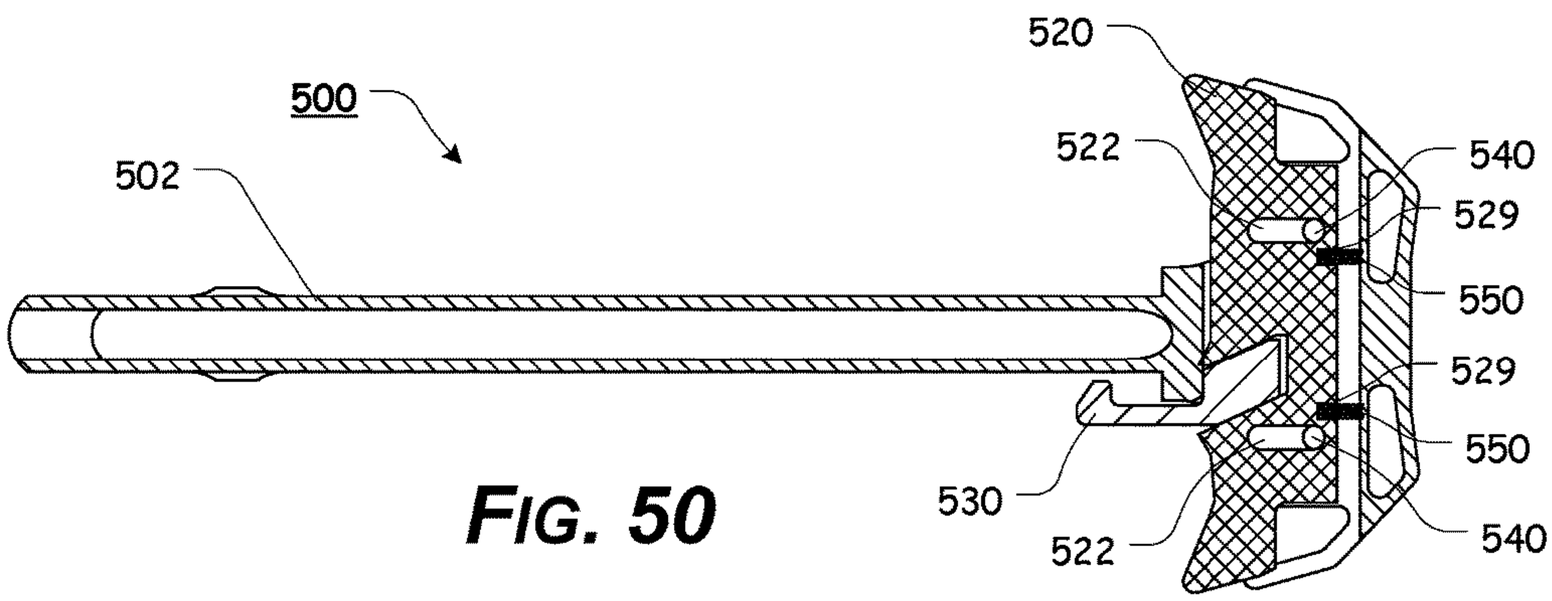


FIG. 50

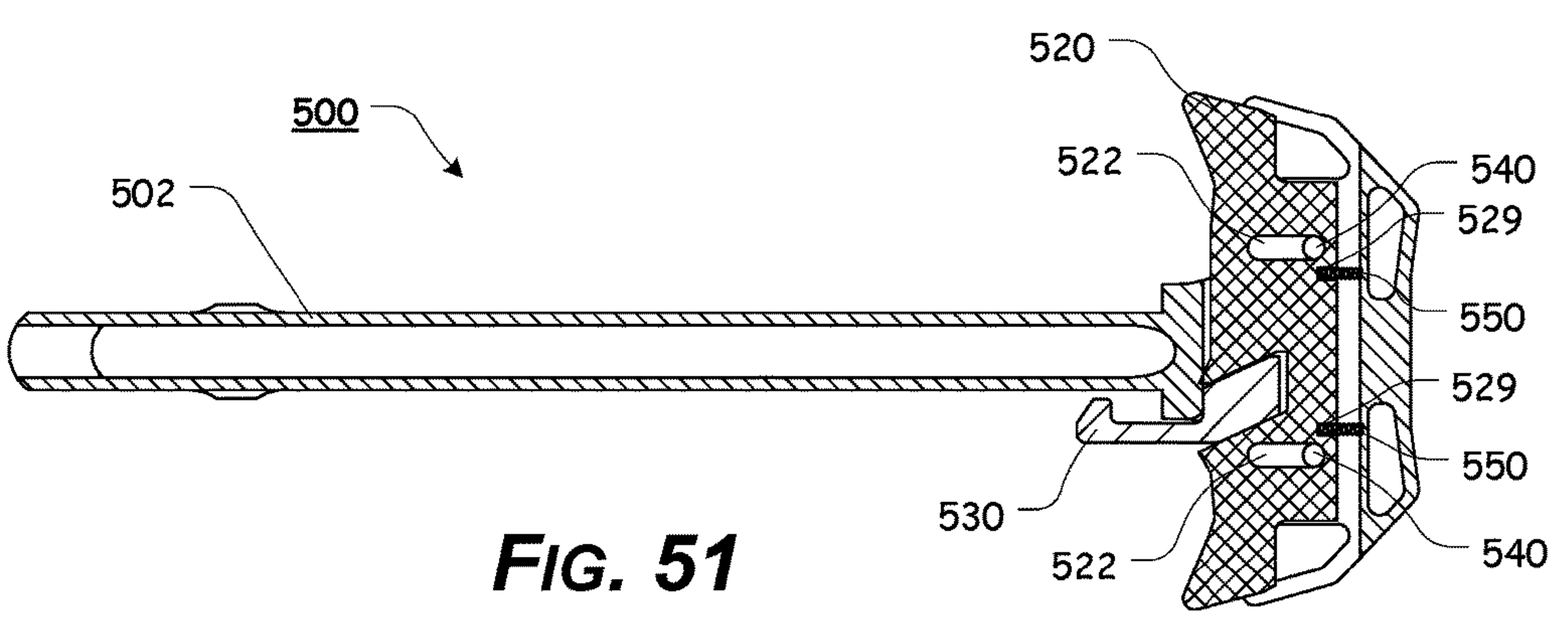


FIG. 51

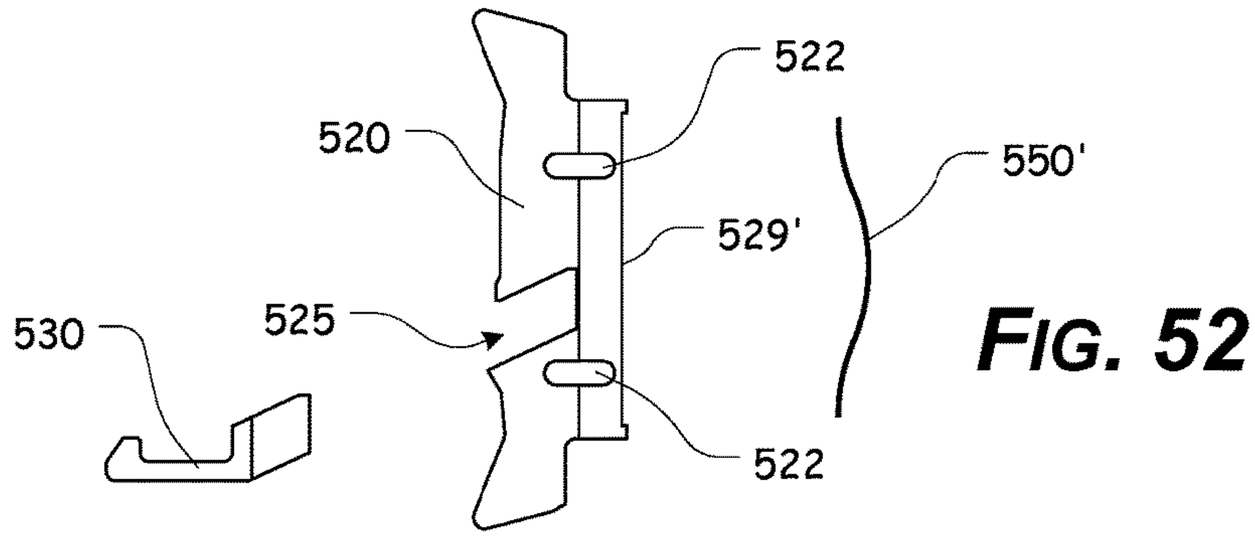


FIG. 52

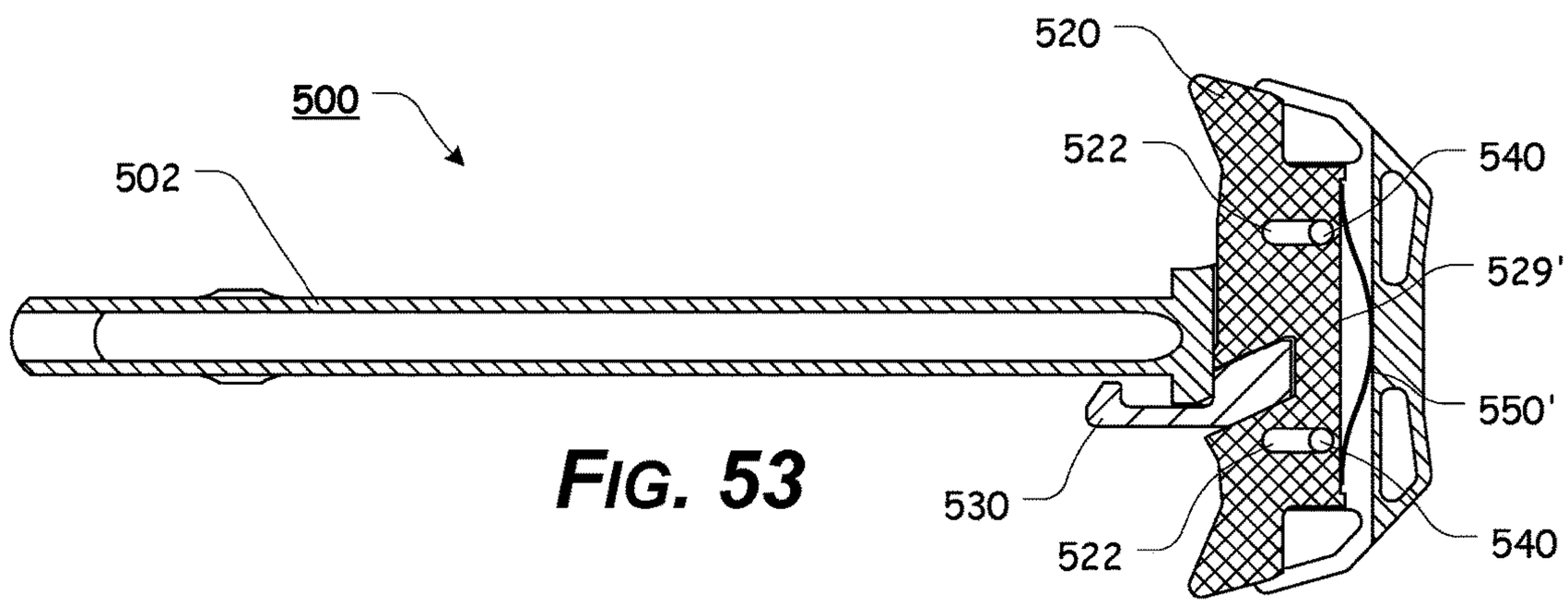


FIG. 53

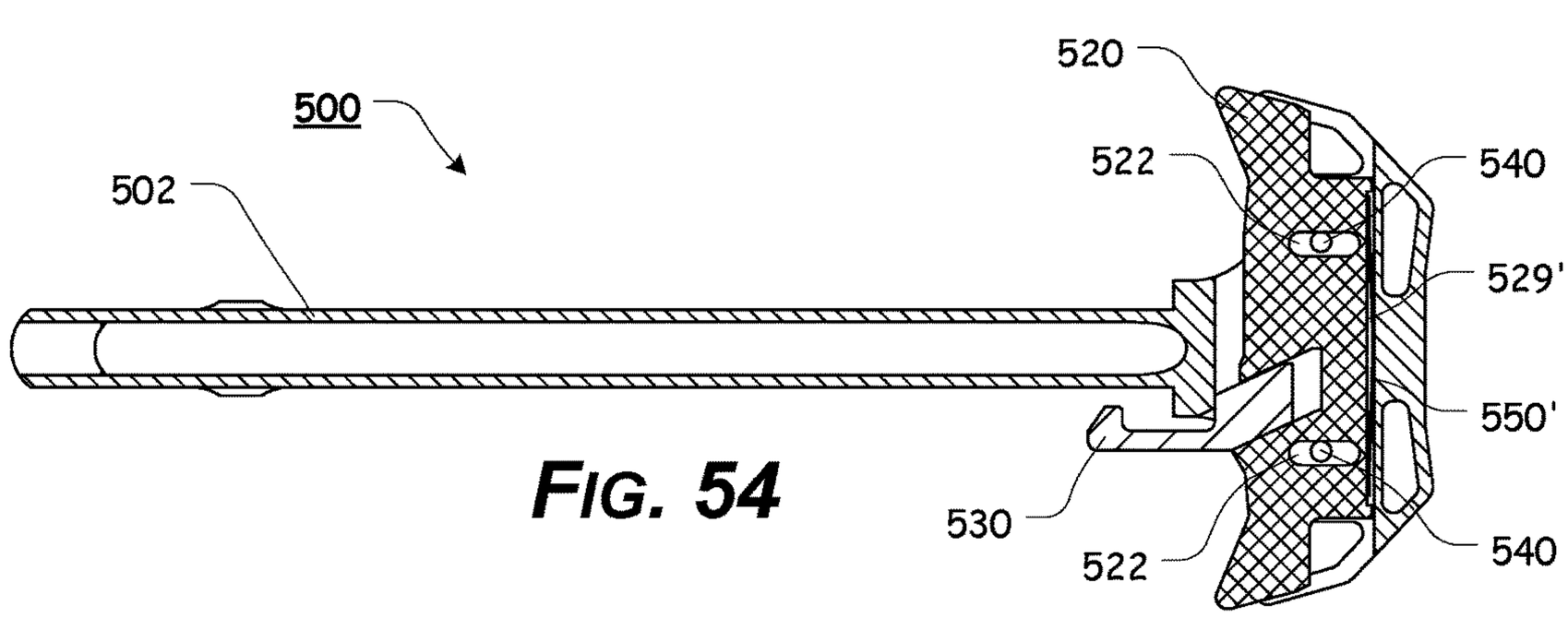


FIG. 54

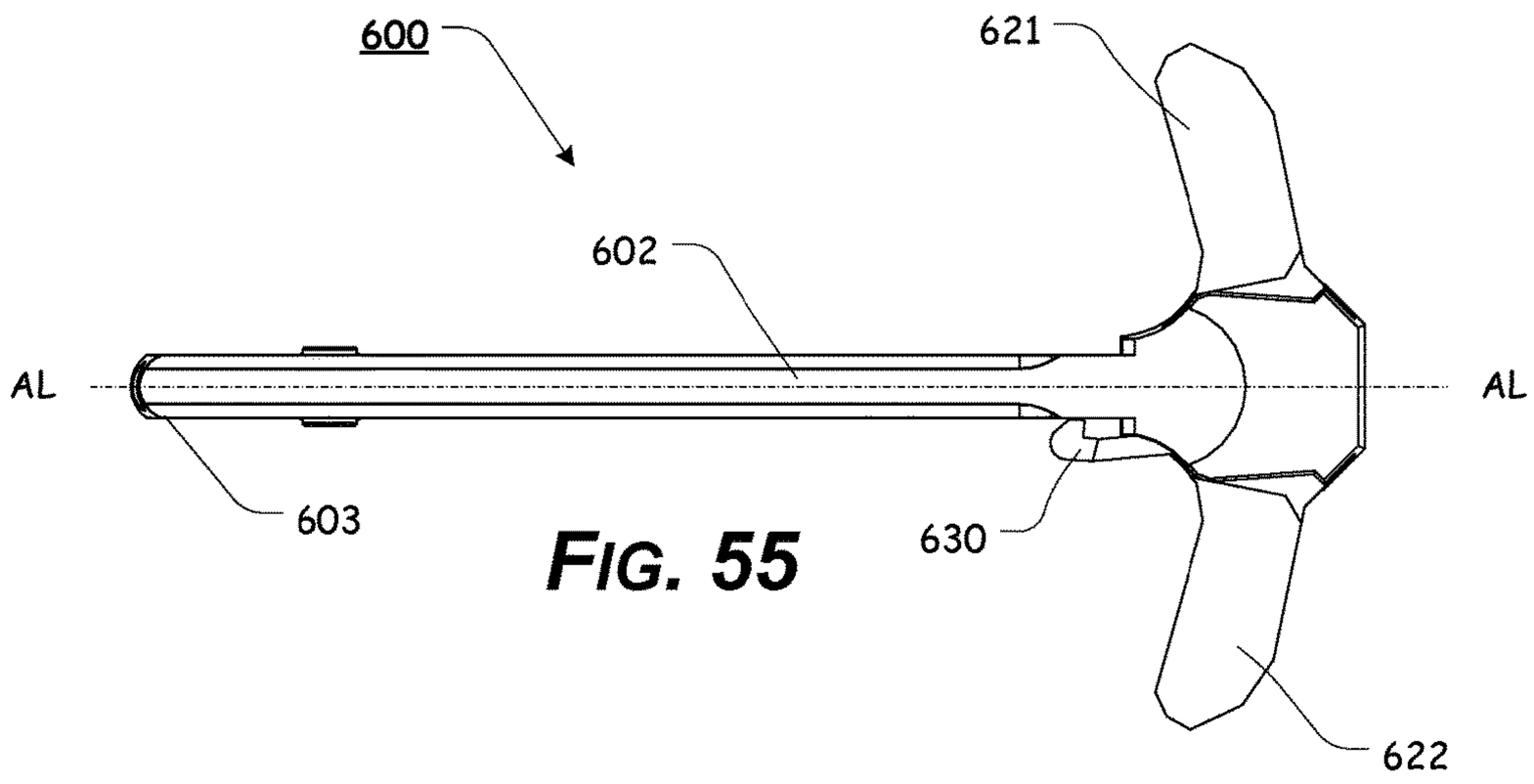


FIG. 55

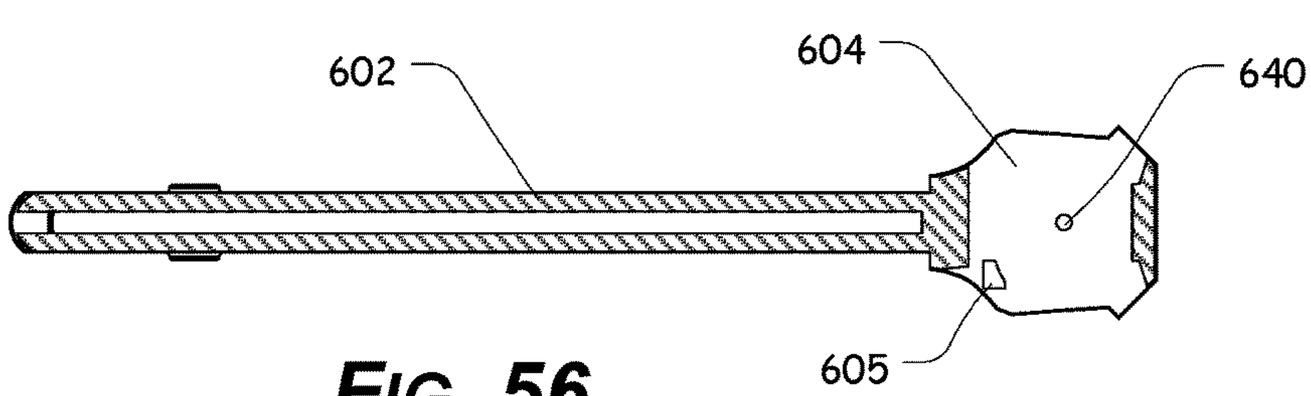
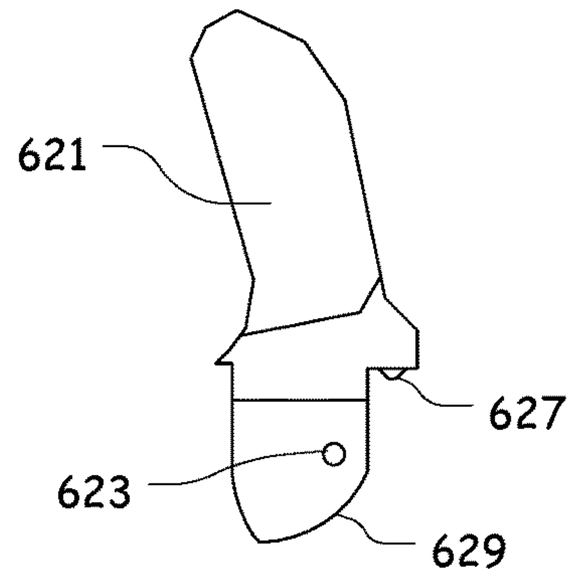


FIG. 56

FIG. 57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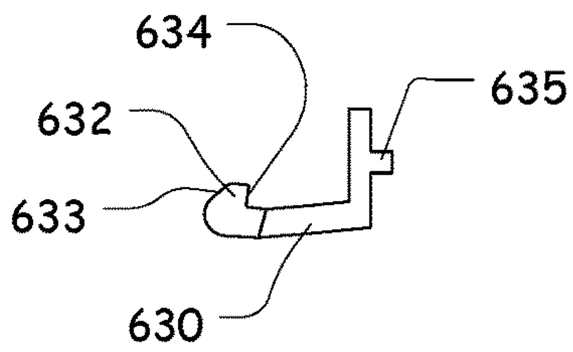
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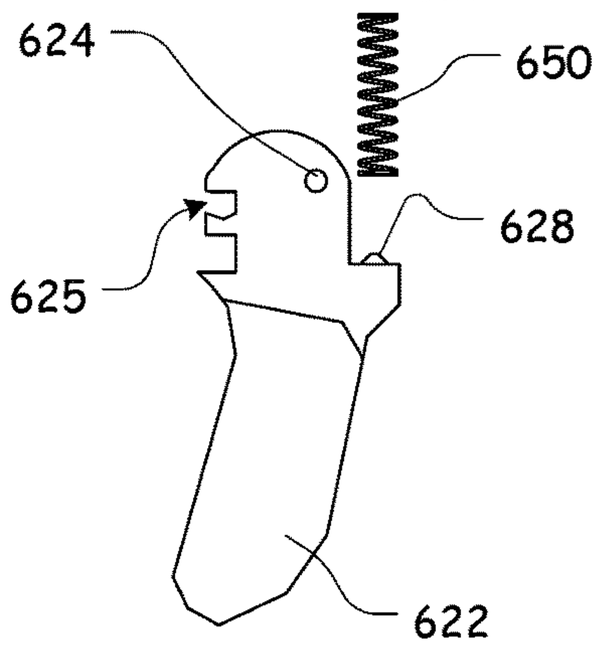
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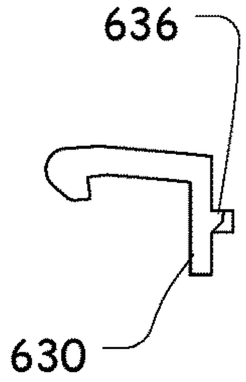
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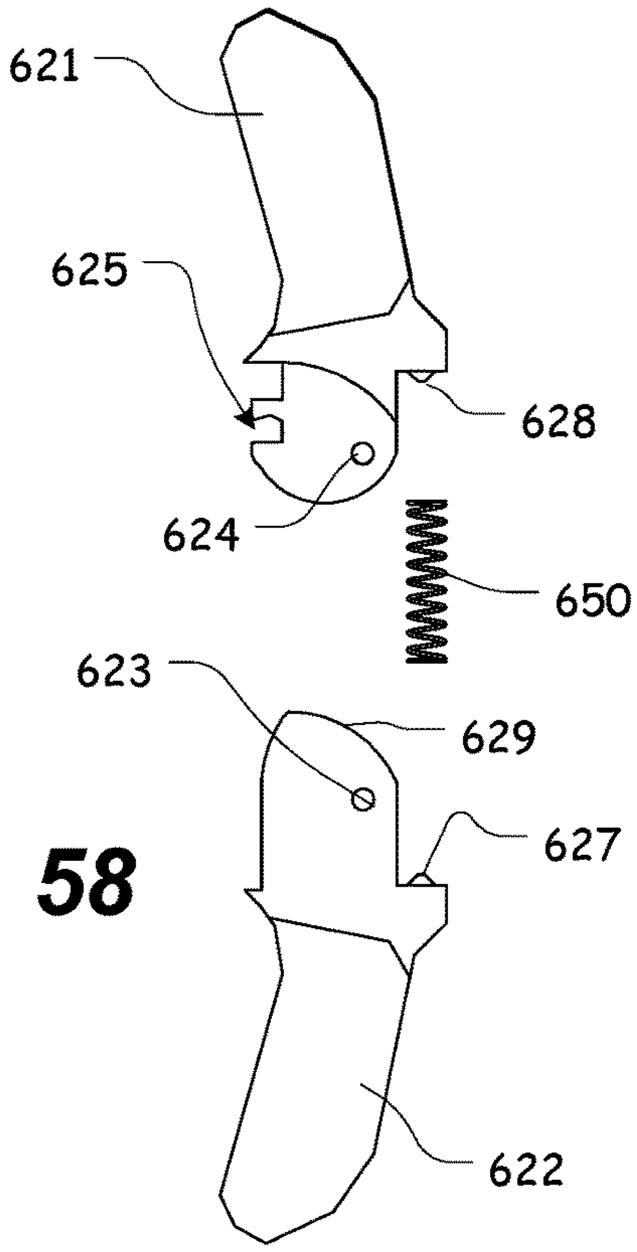
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FIG. 58

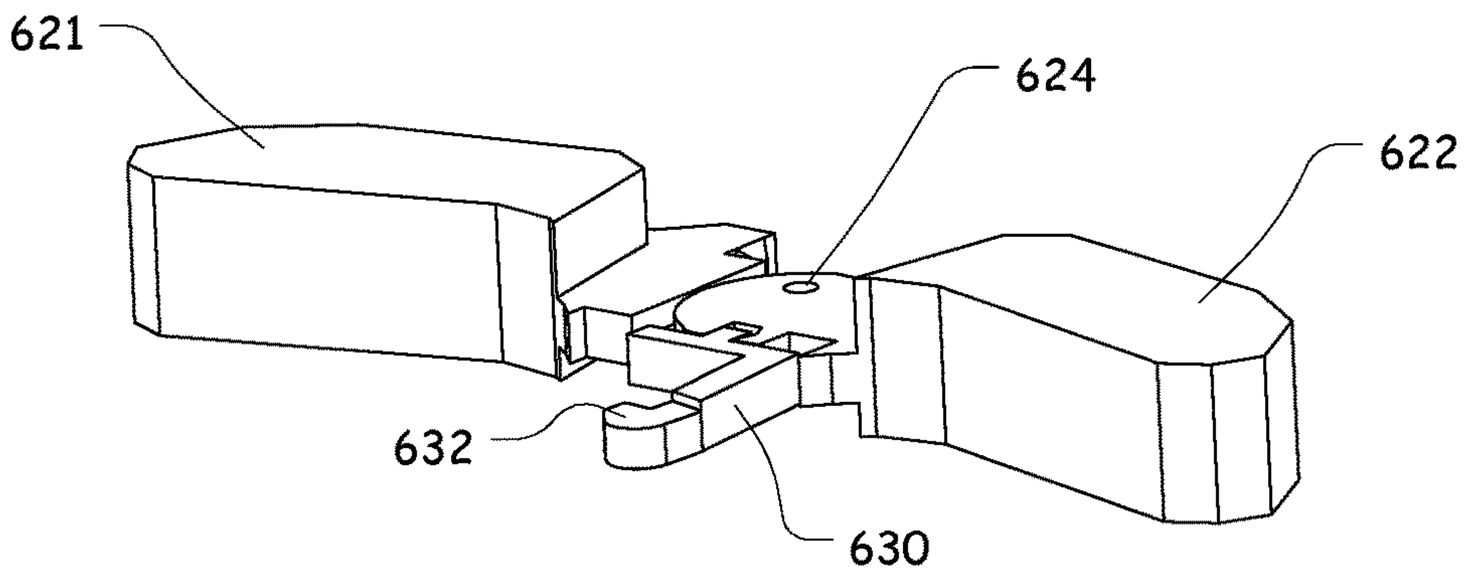

FIG. 59

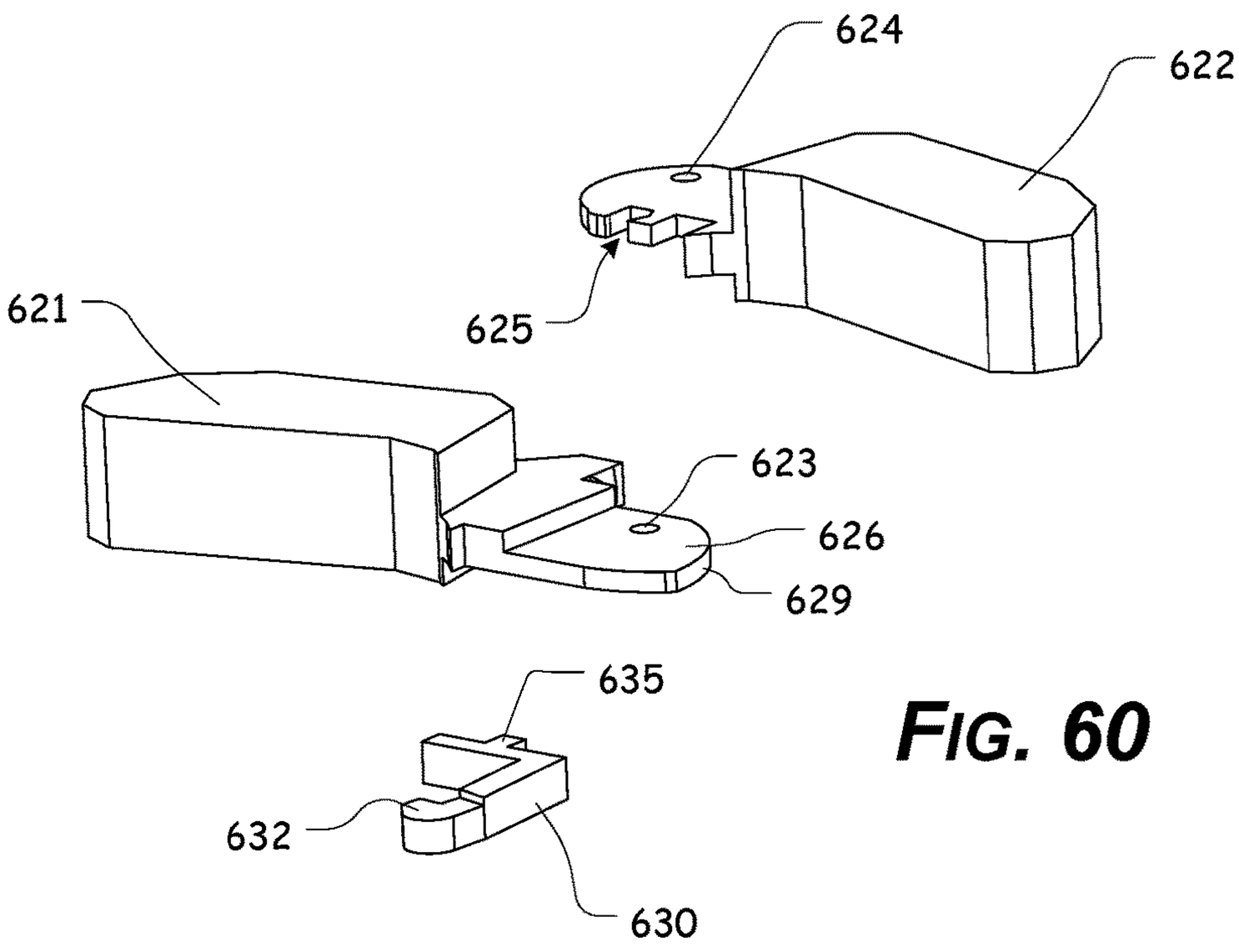

FIG. 60

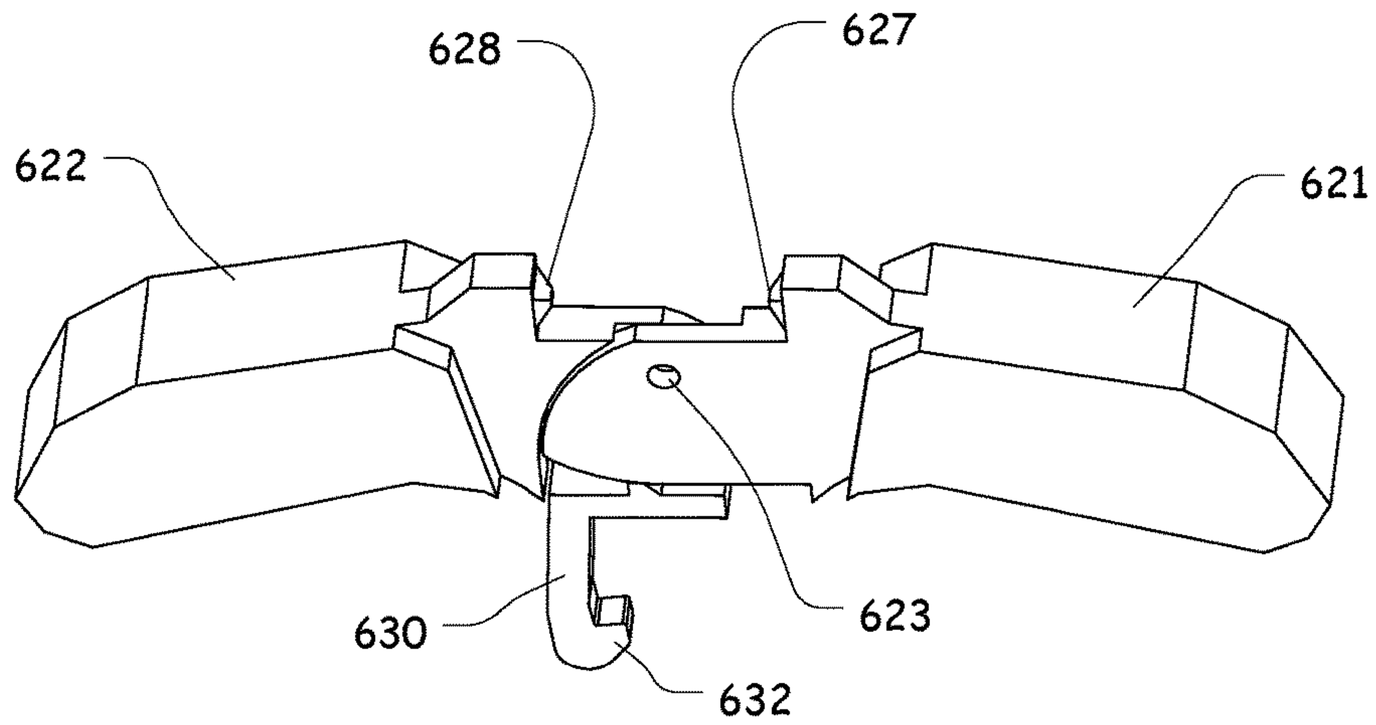
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FIG. 61

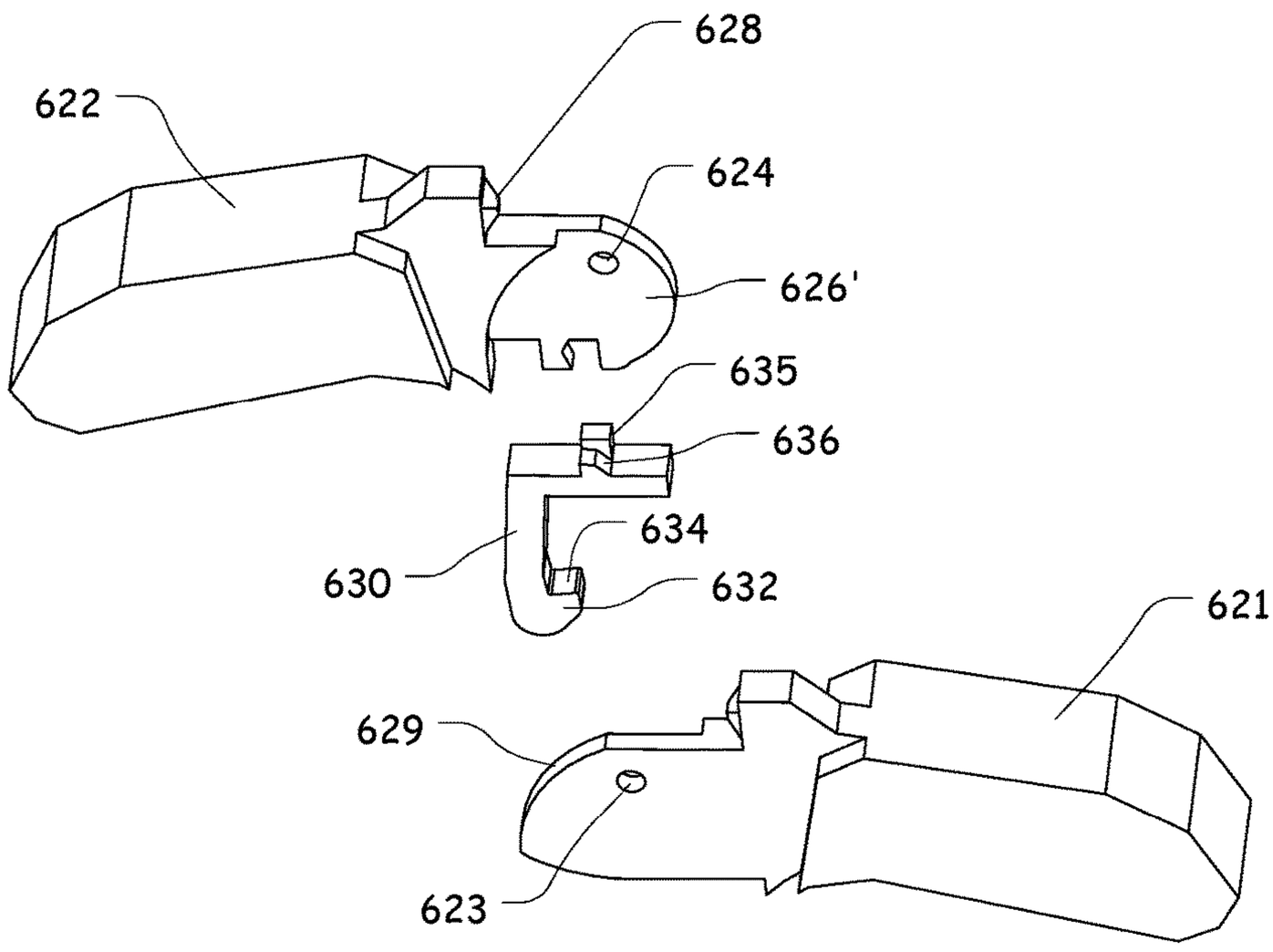
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FIG. 62

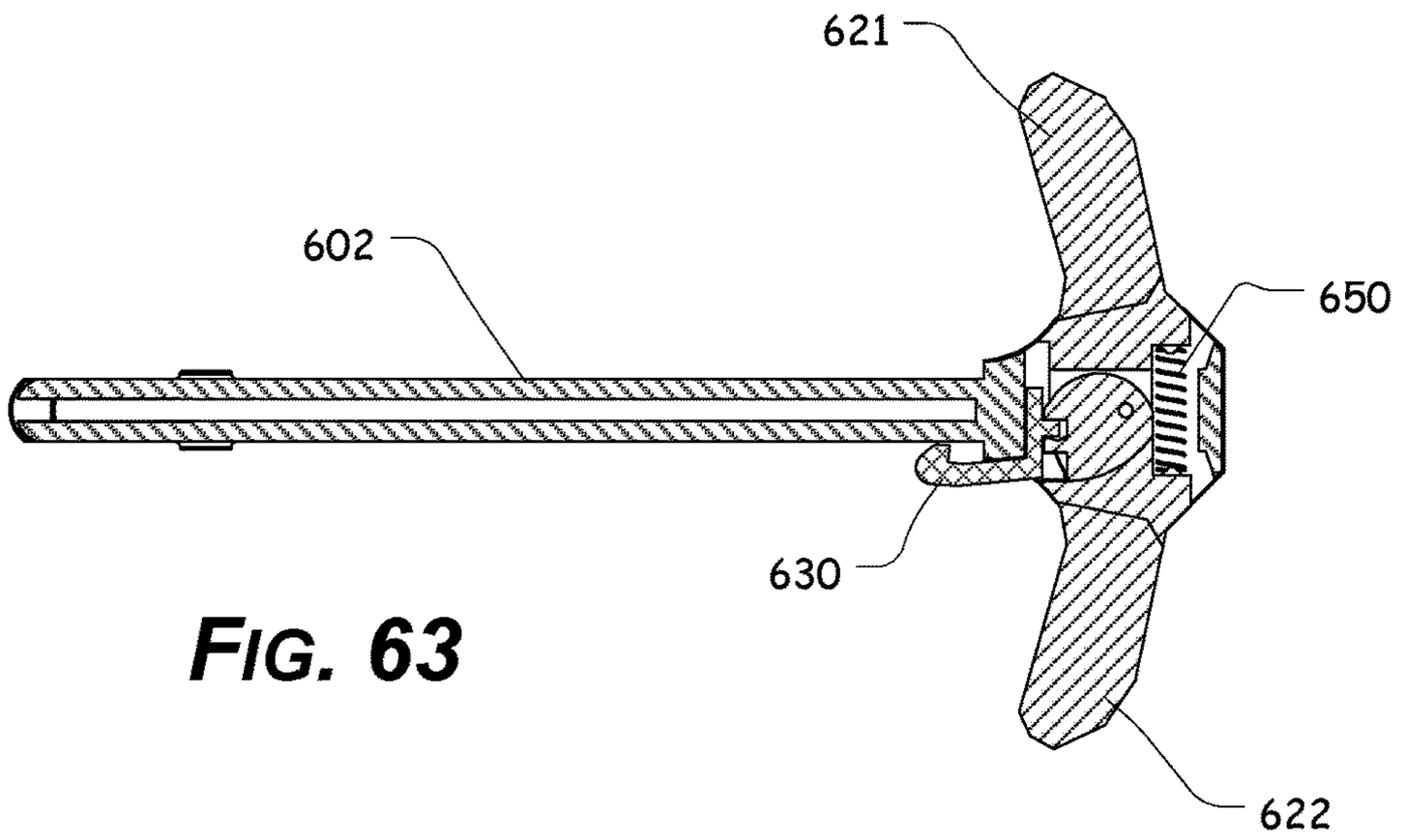

FIG. 63

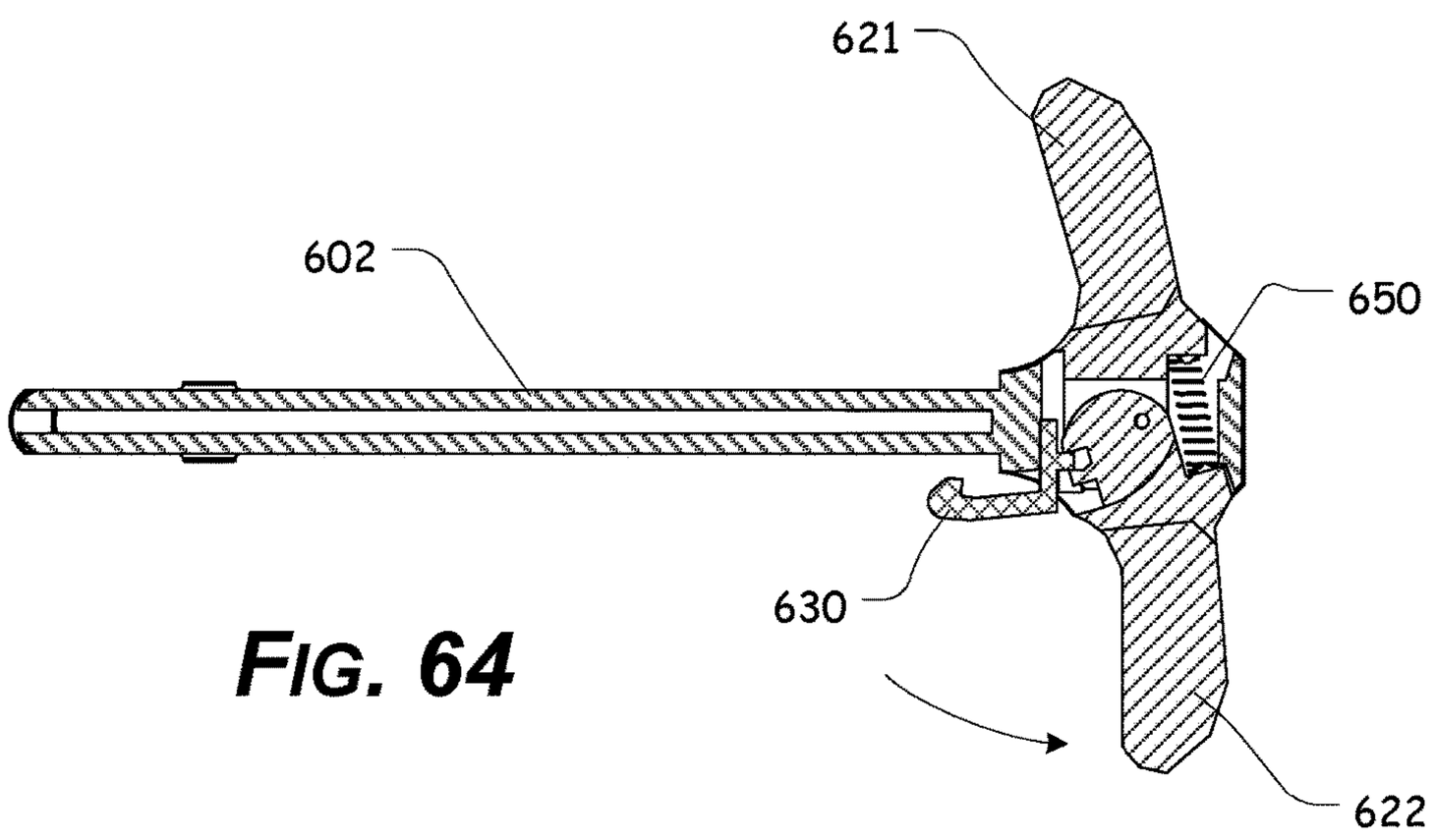

FIG. 64

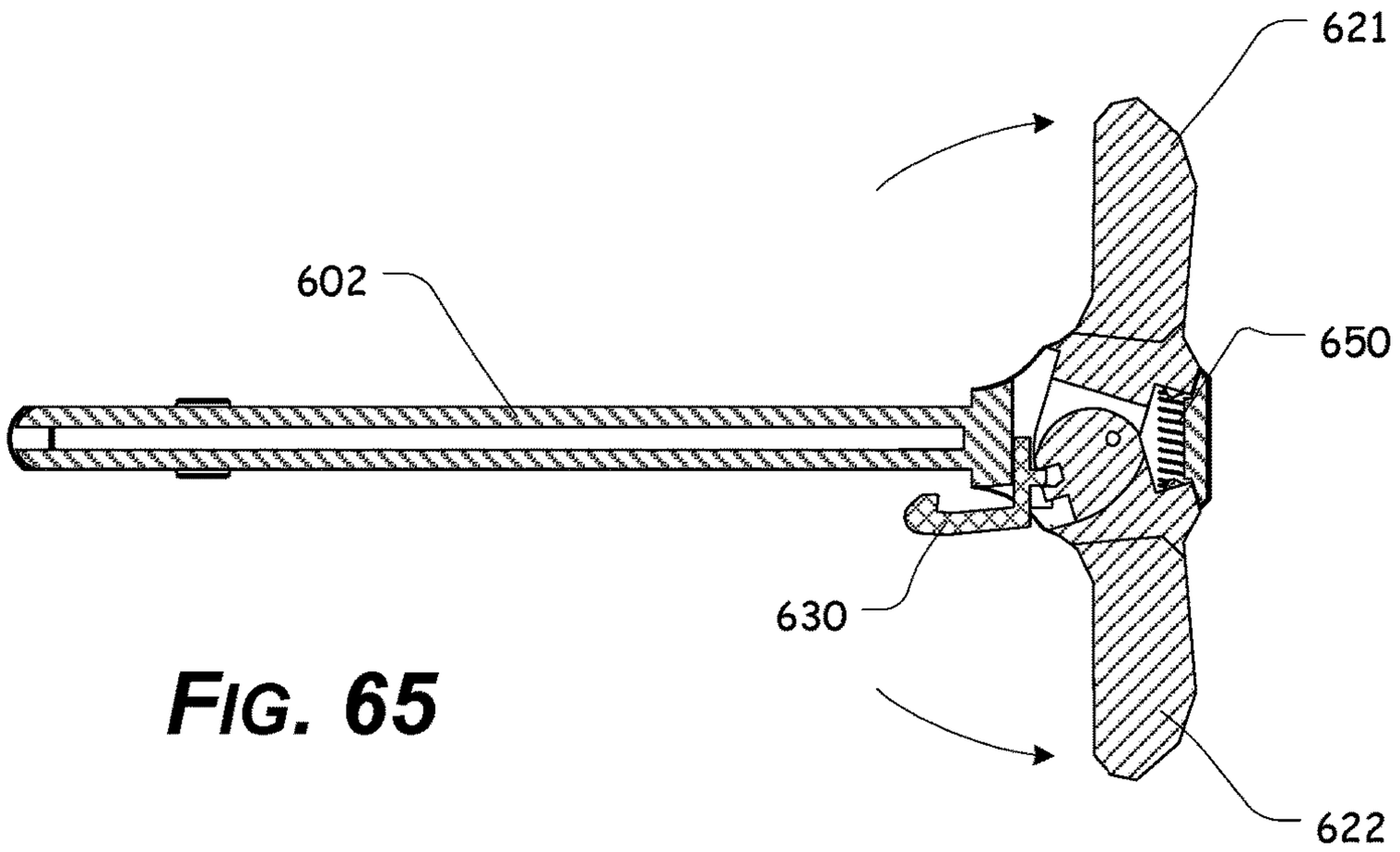

FIG. 65

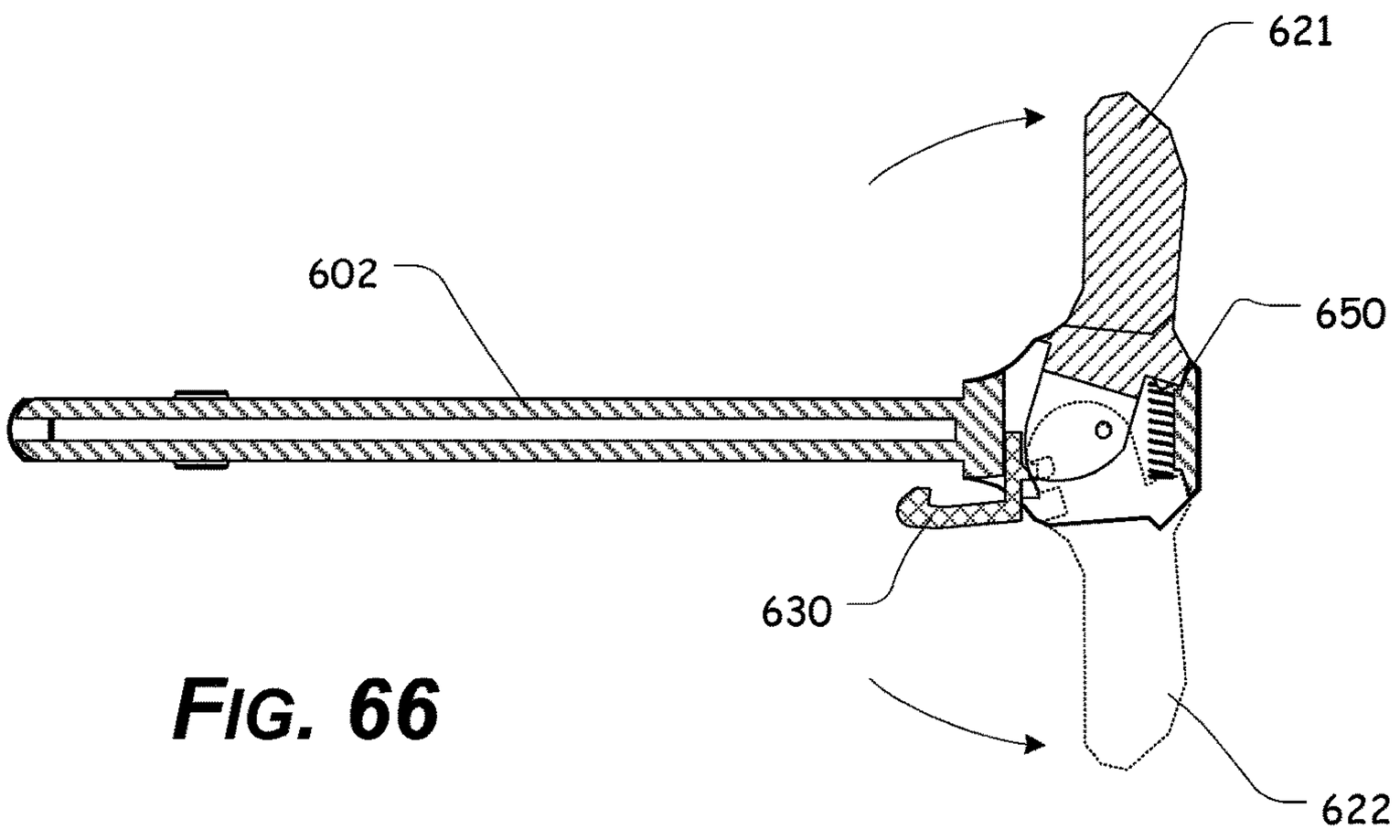

FIG. 66

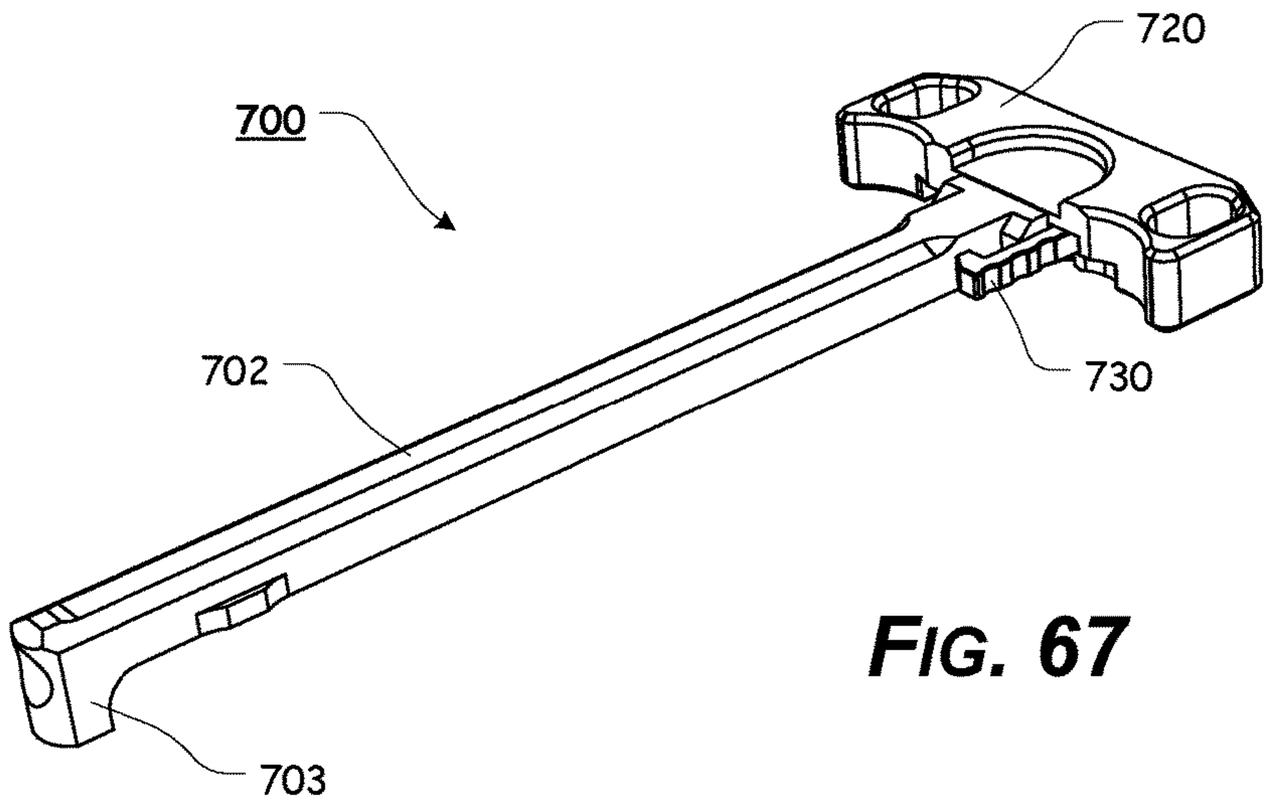
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FIG. 67

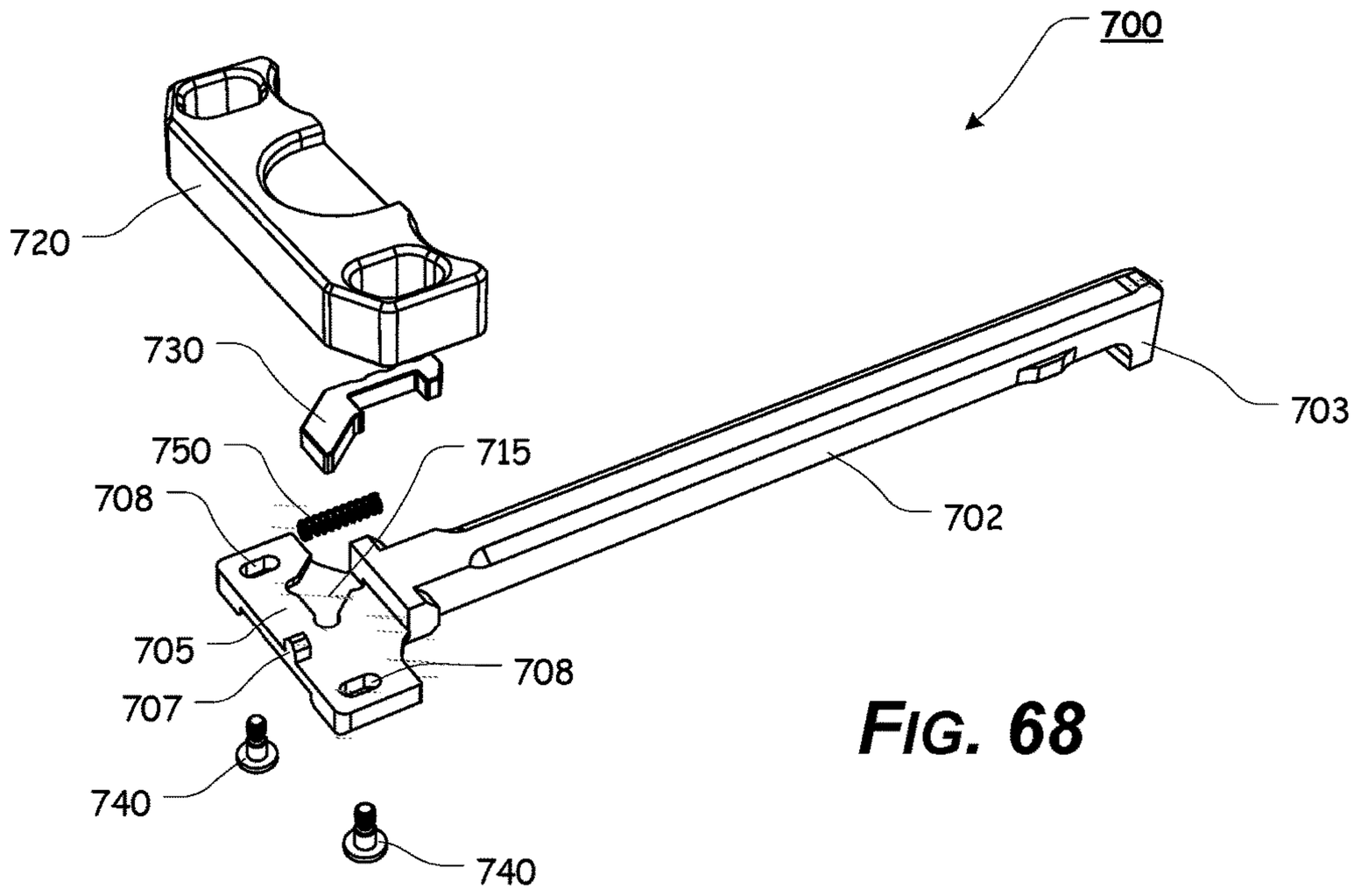
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FIG. 68

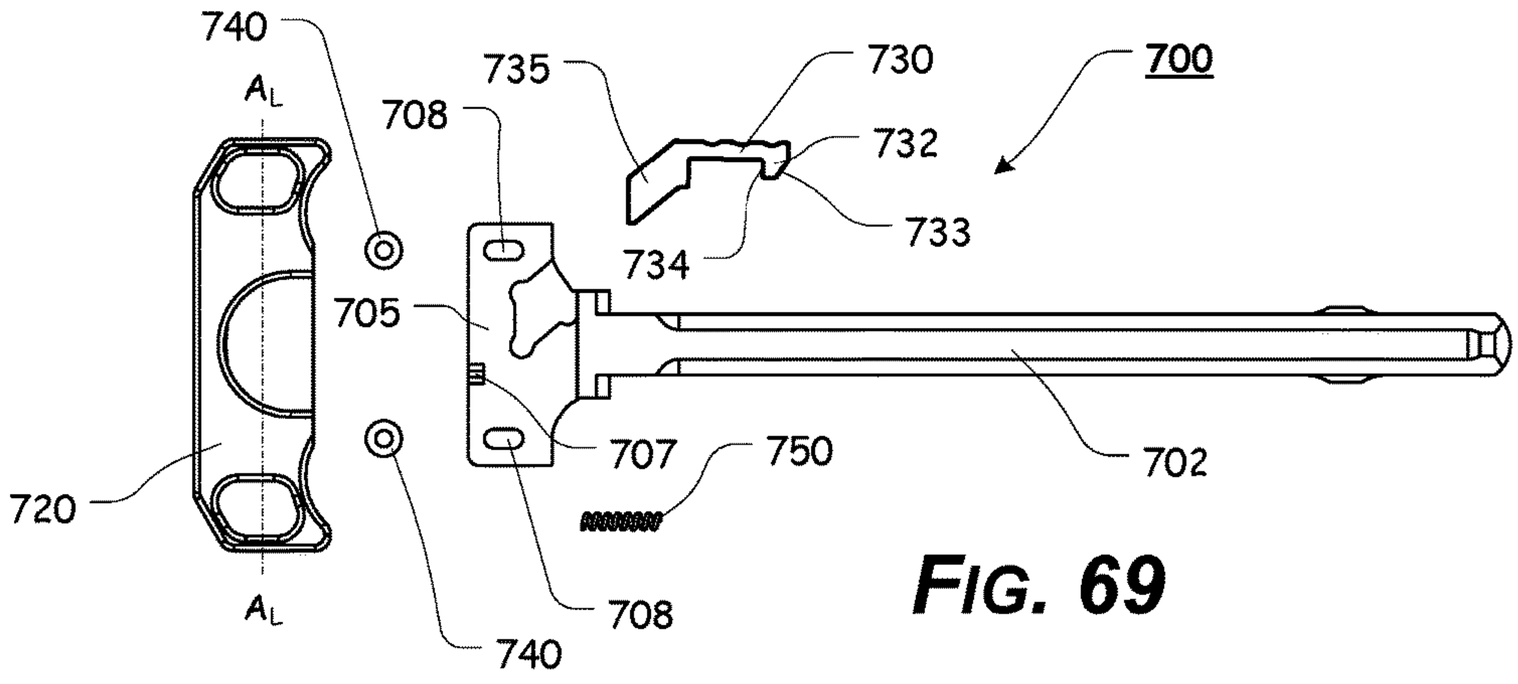

FIG. 69

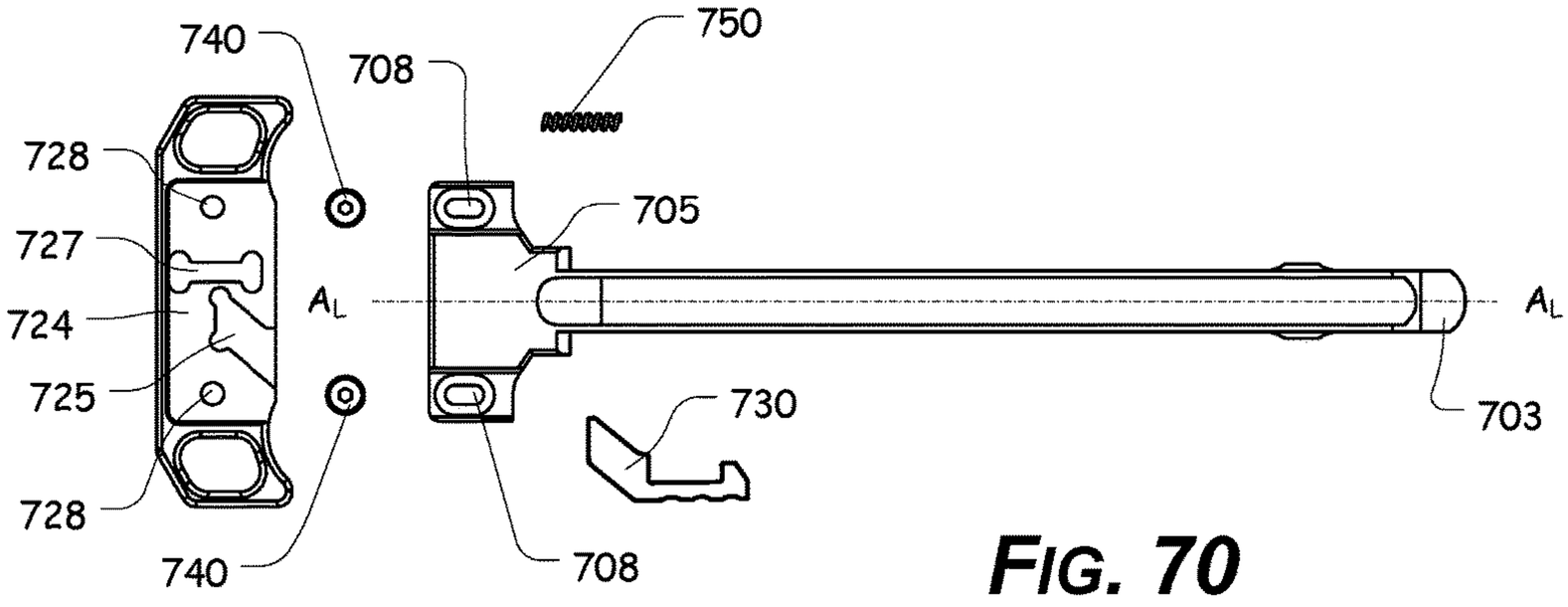

FIG. 70

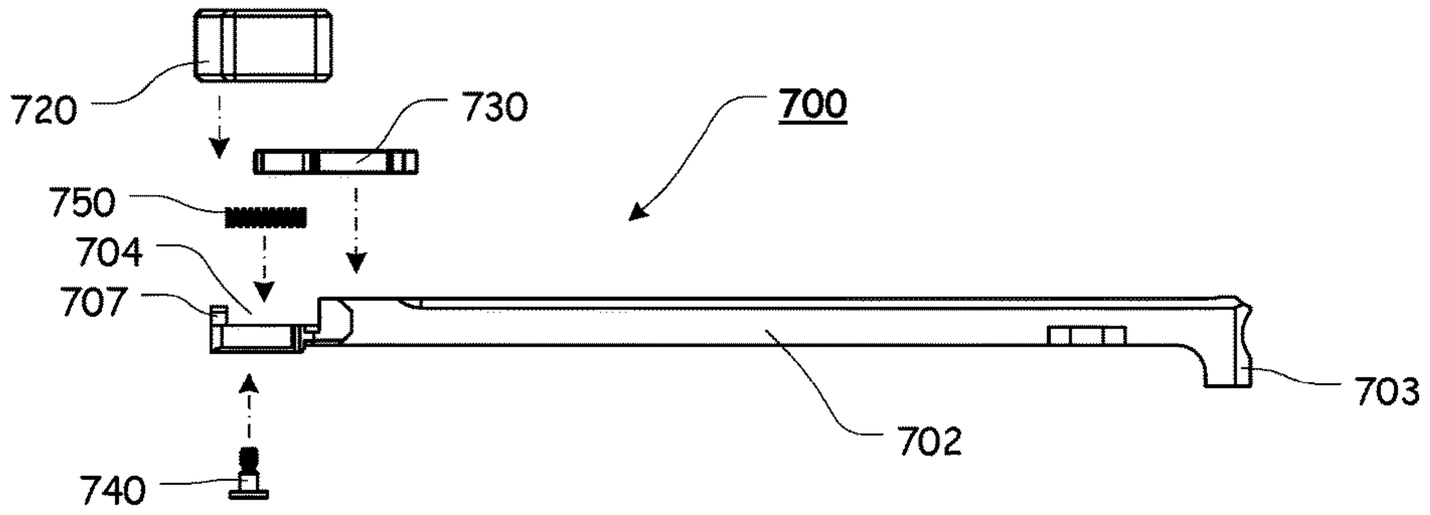

FIG. 71

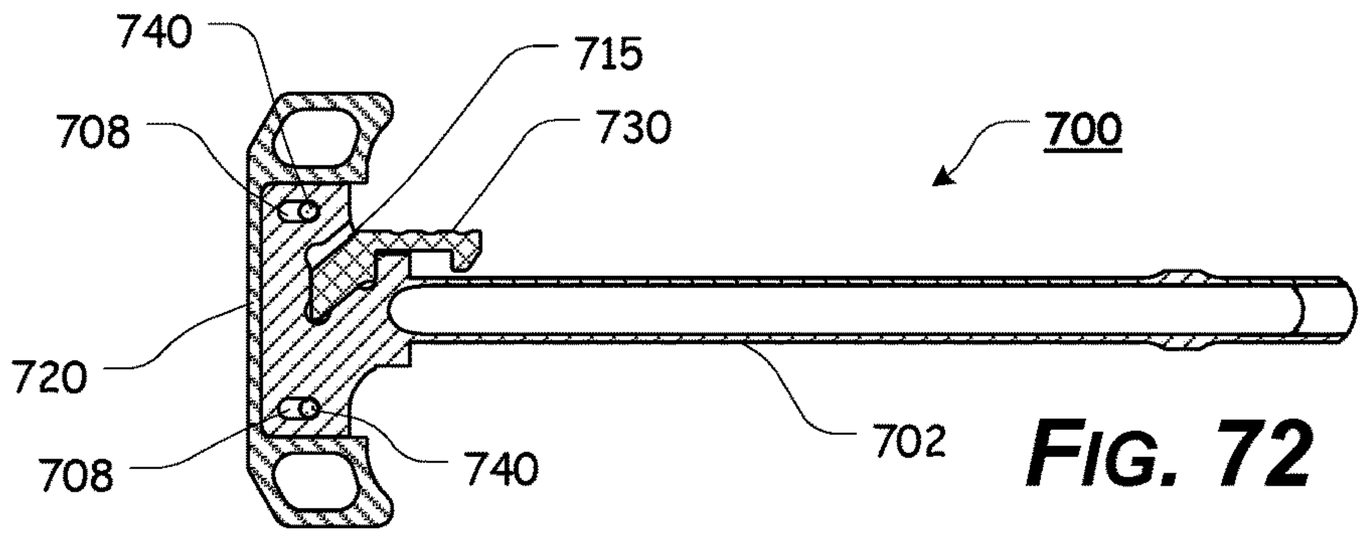

FIG. 72

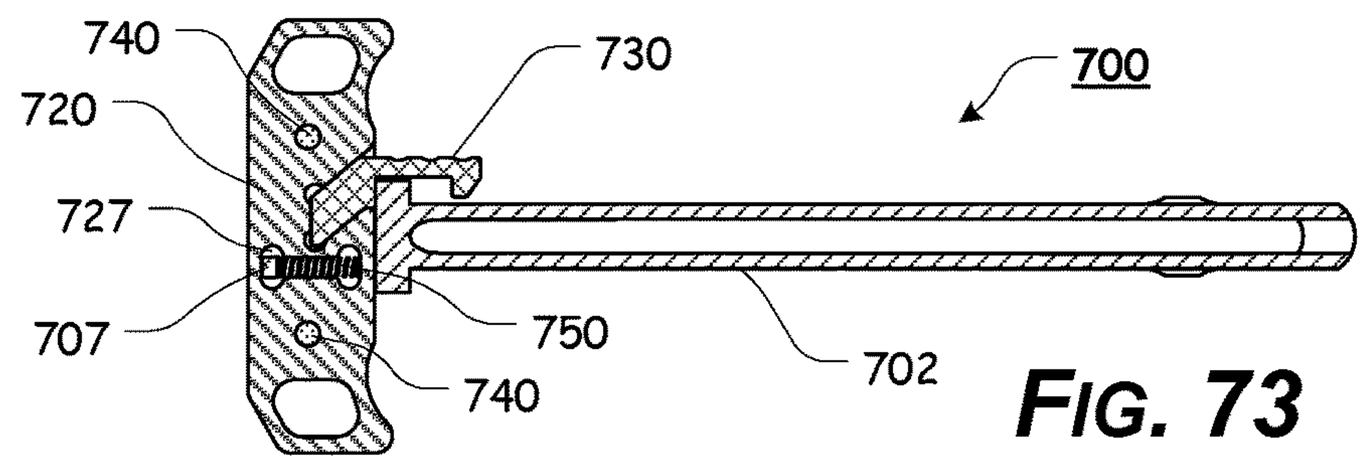

FIG. 73

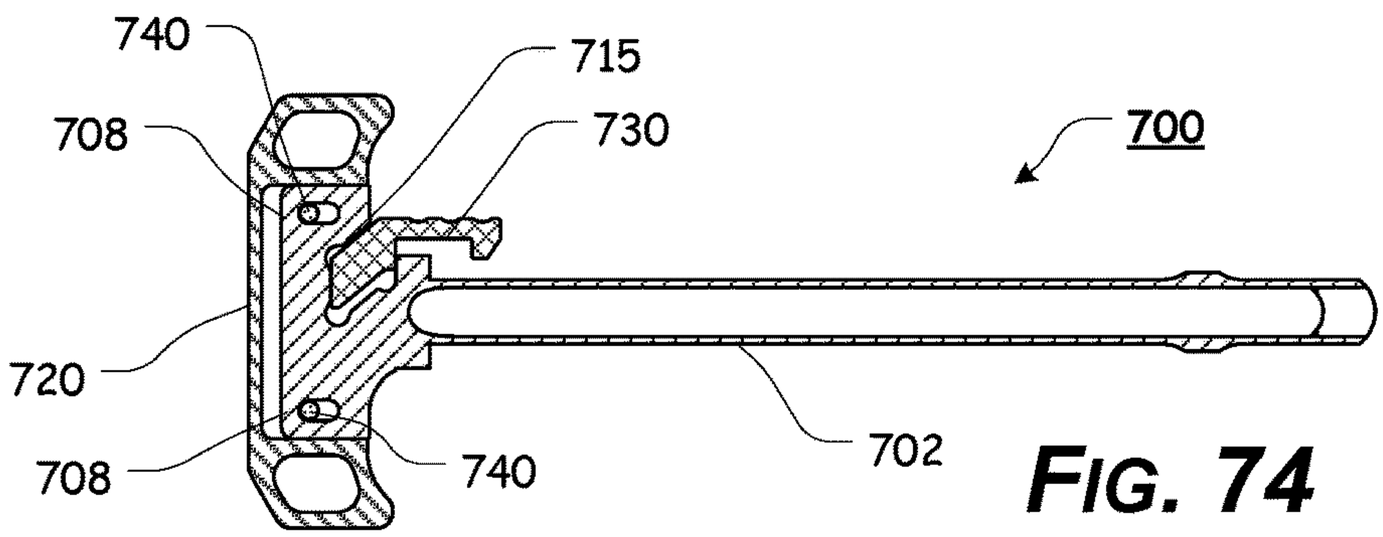

FIG. 74

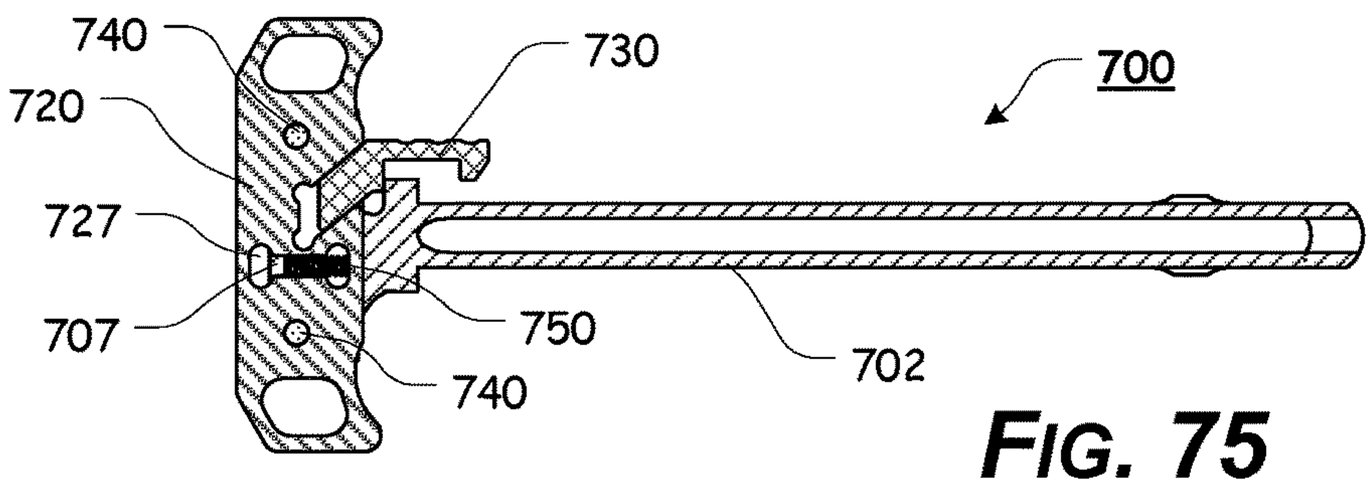

FIG. 75

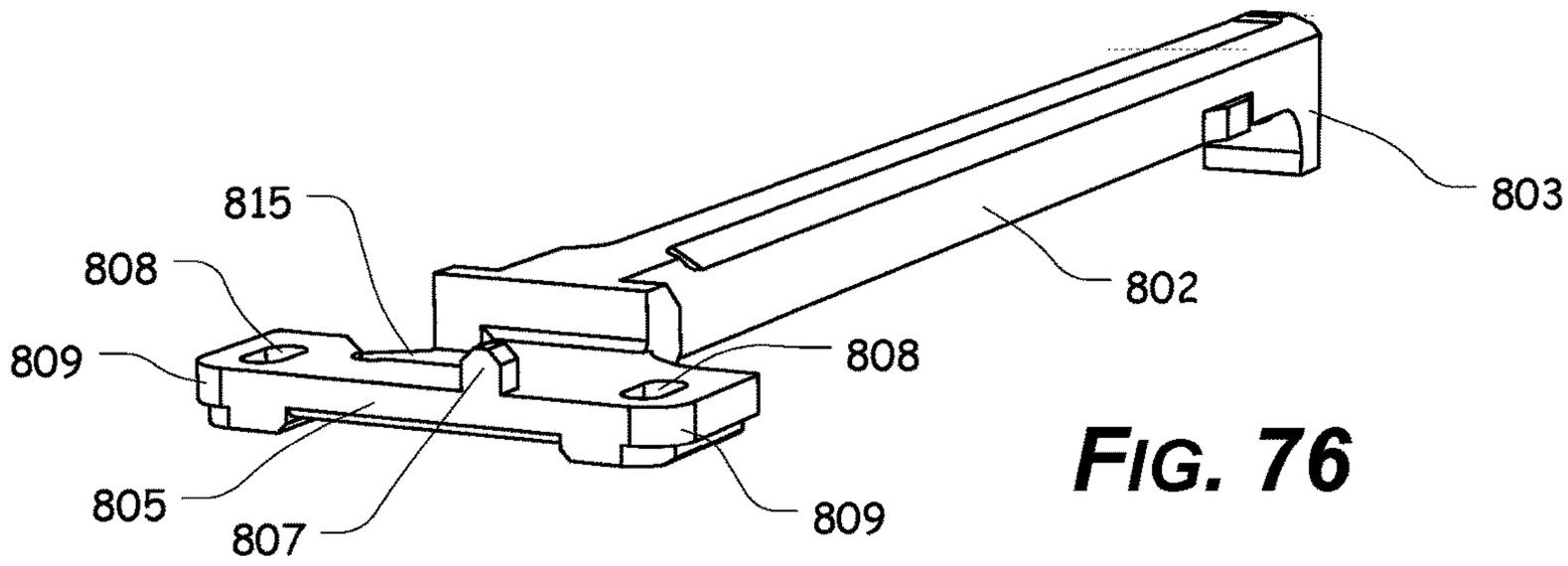

FIG. 76

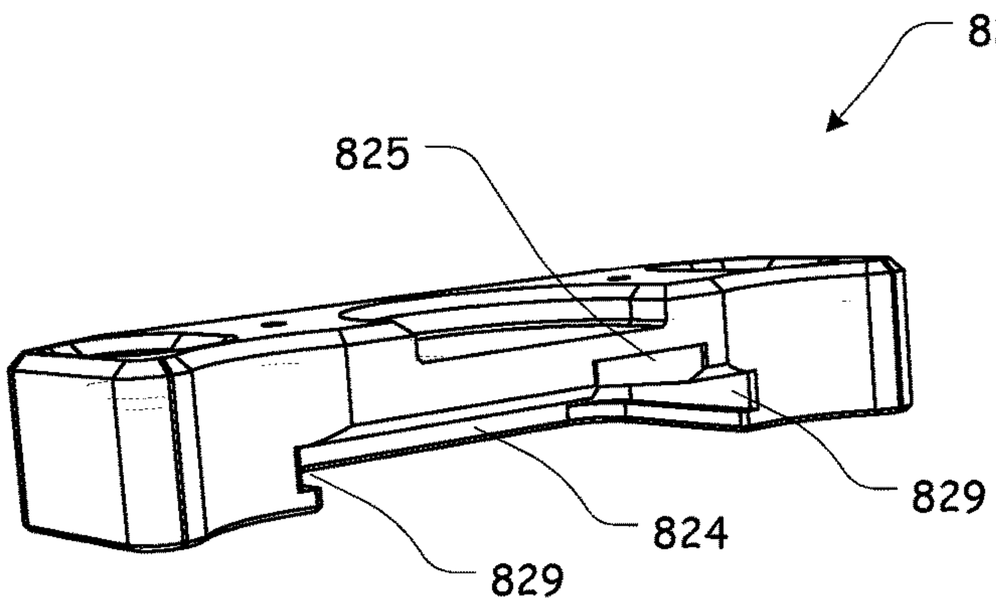

FIG. 77

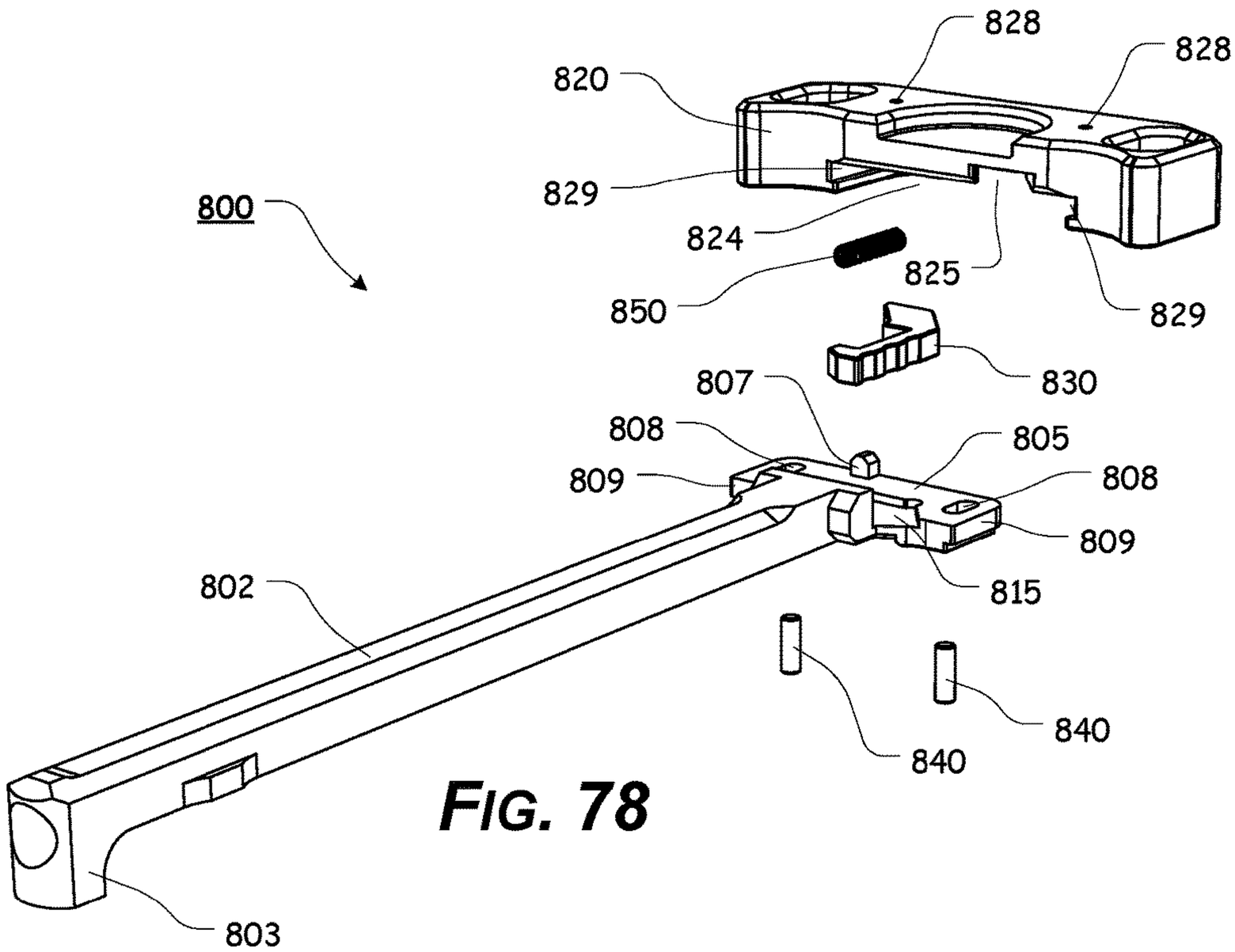
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FIG. 78

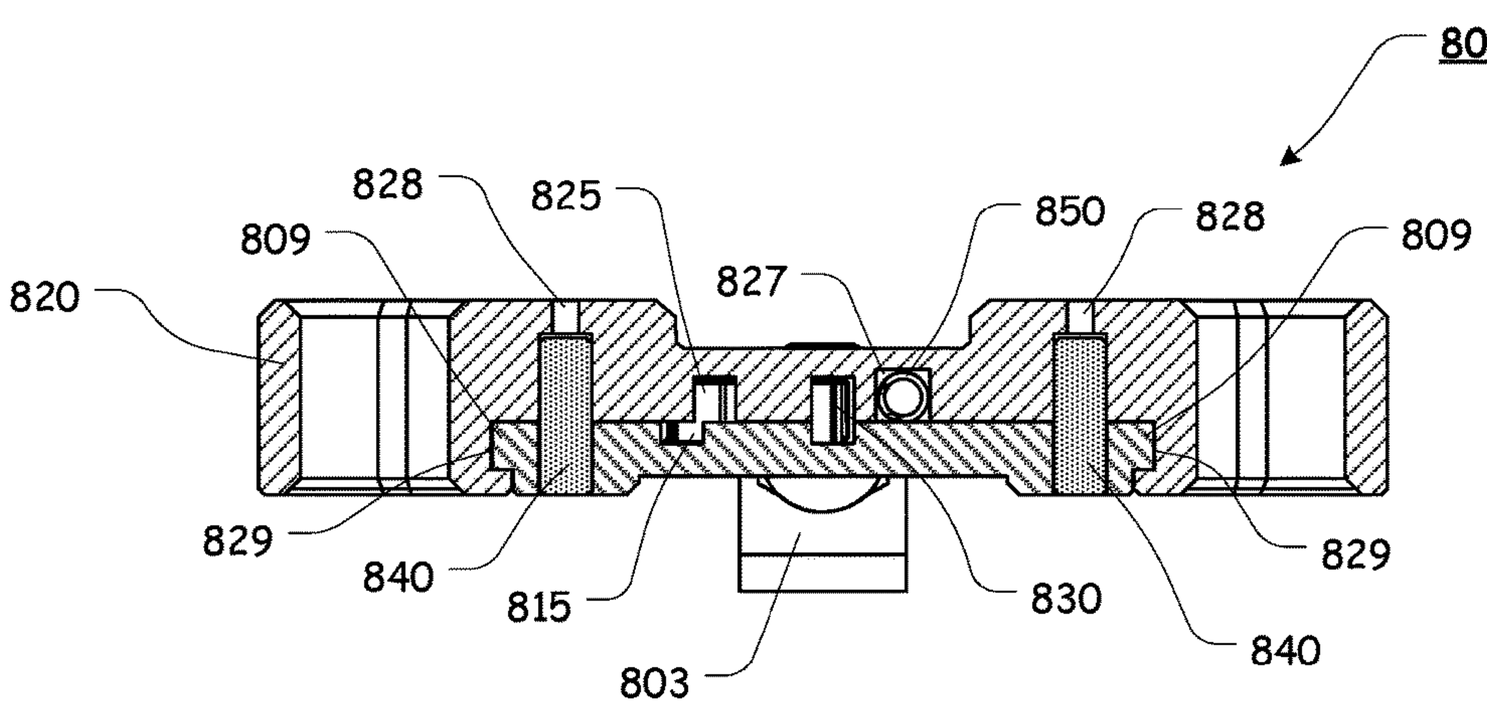
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FIG. 79

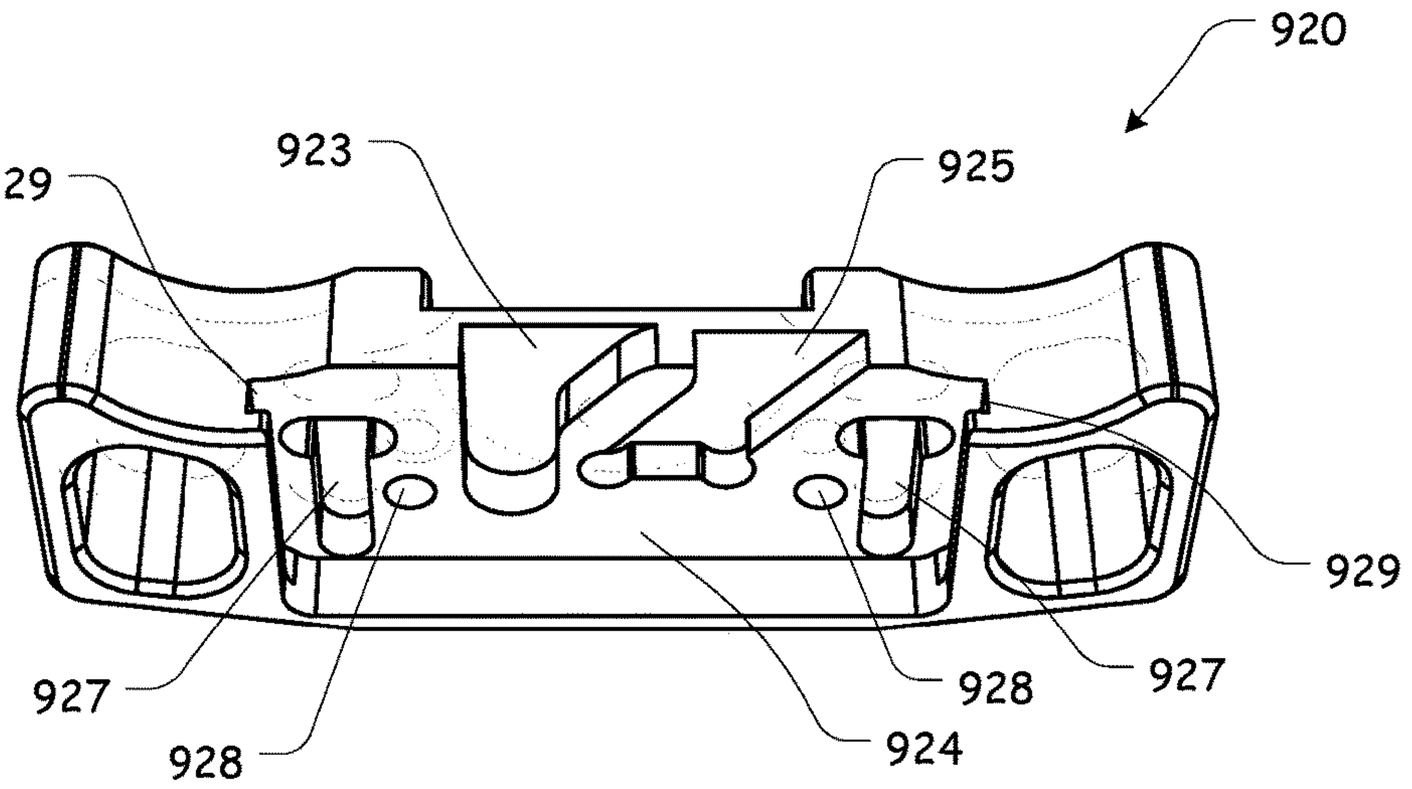
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FIG. 80

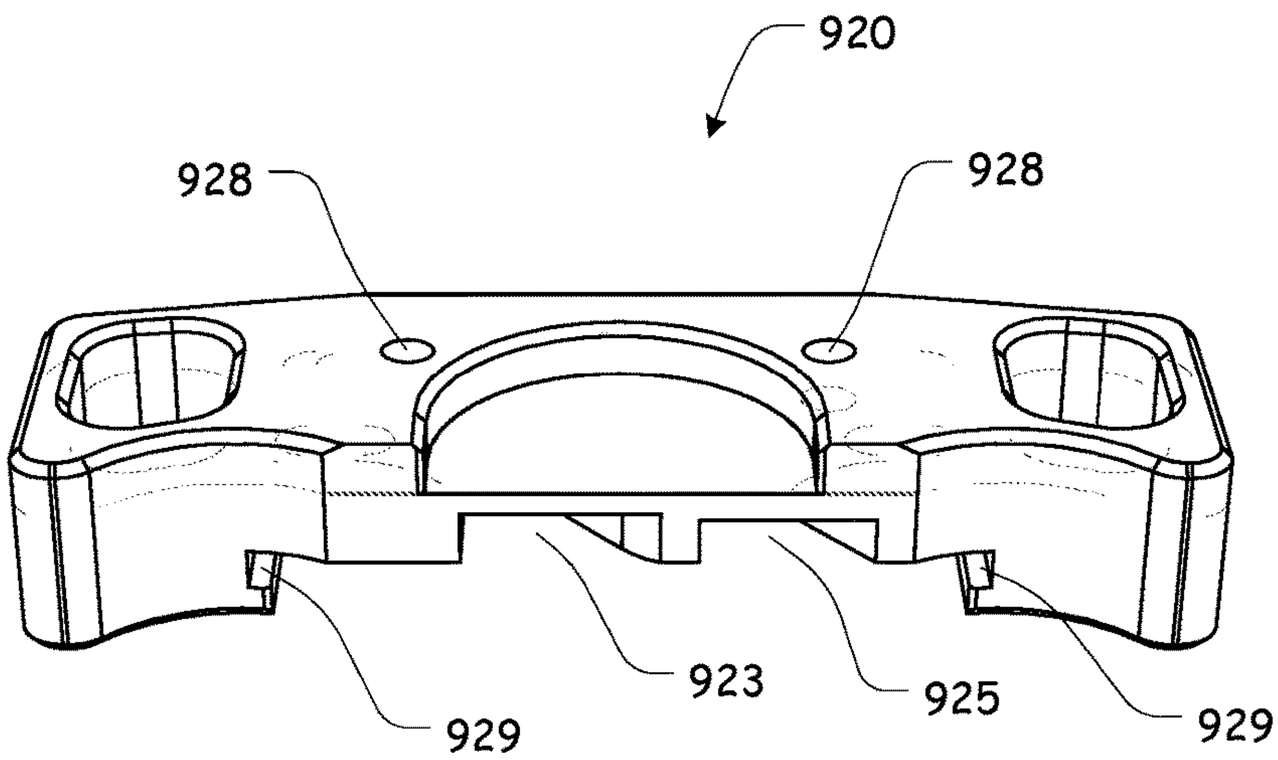
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FIG. 81

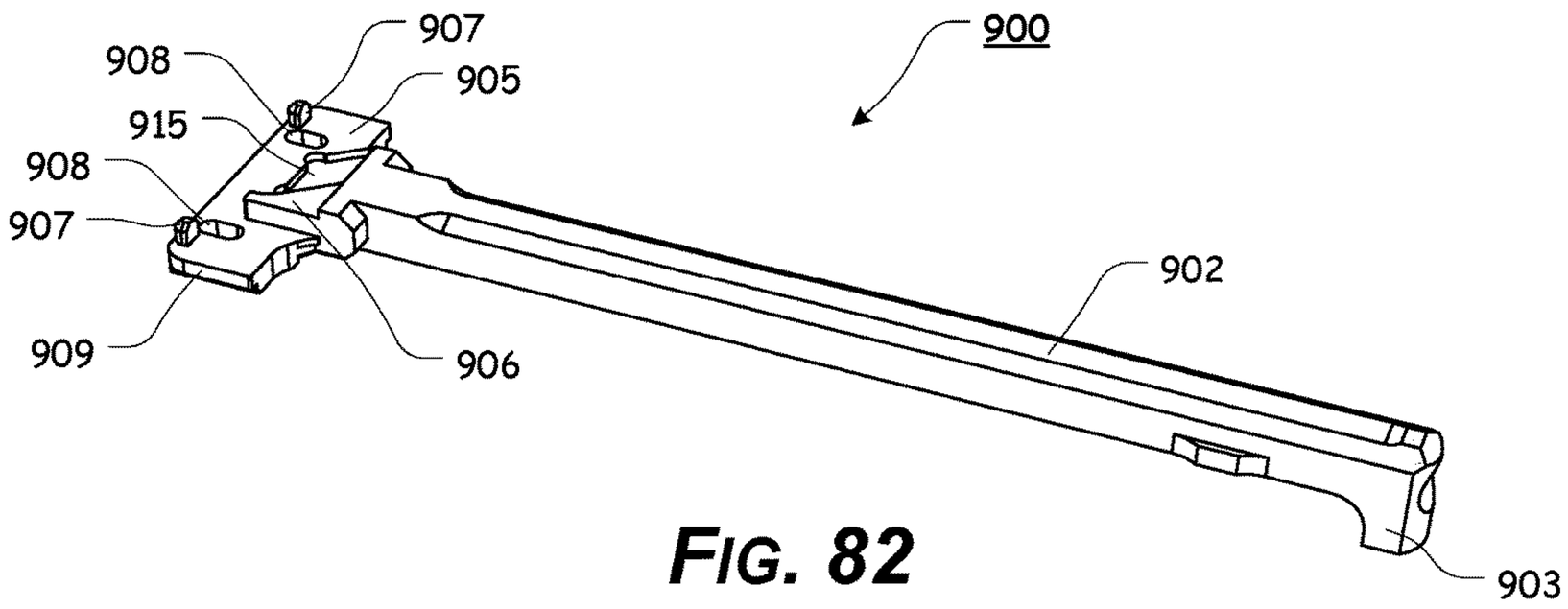
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FIG. 82

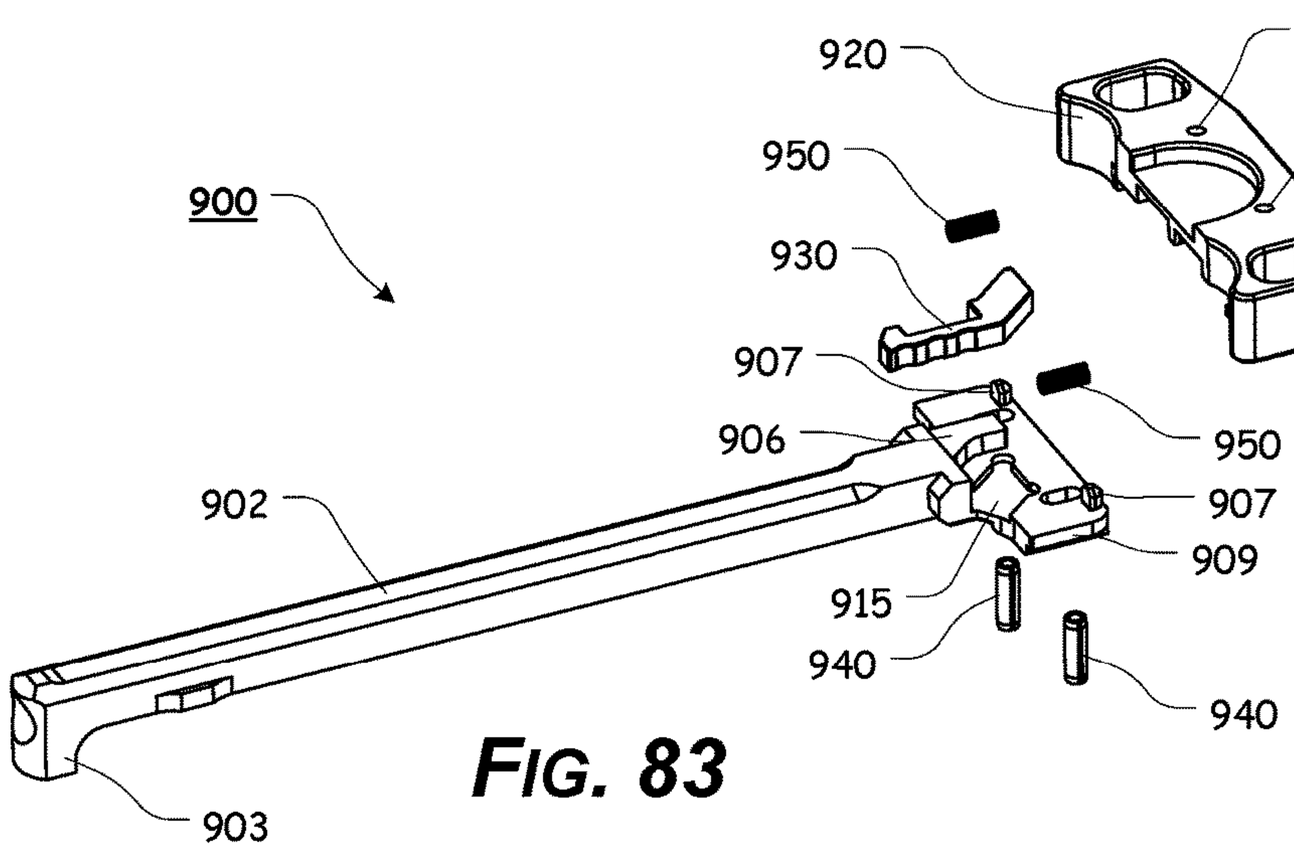
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FIG. 83

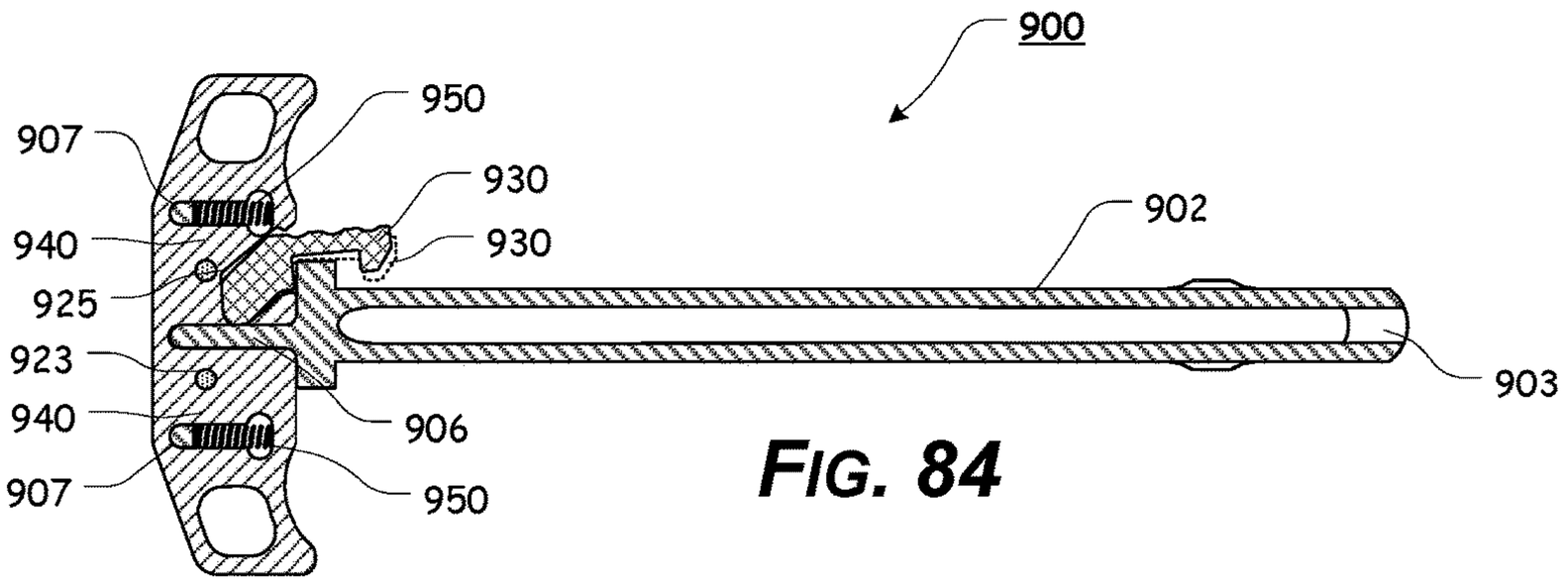
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FIG. 84

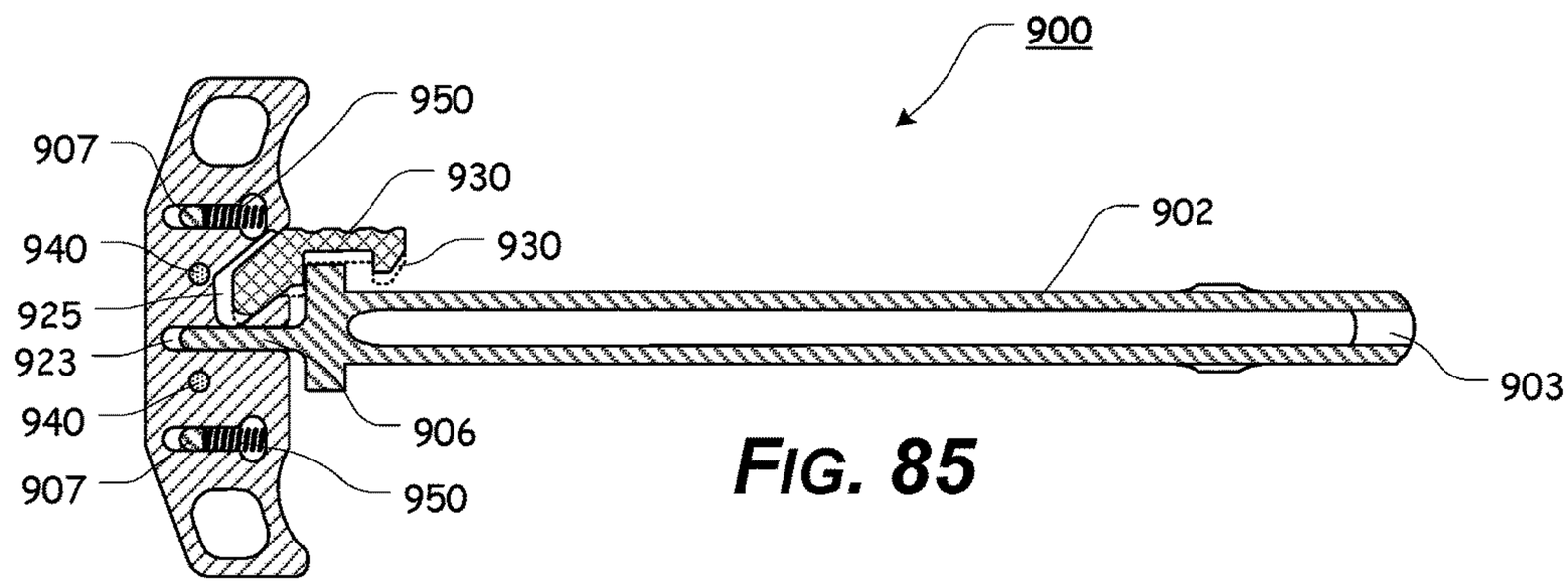
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FIG. 85

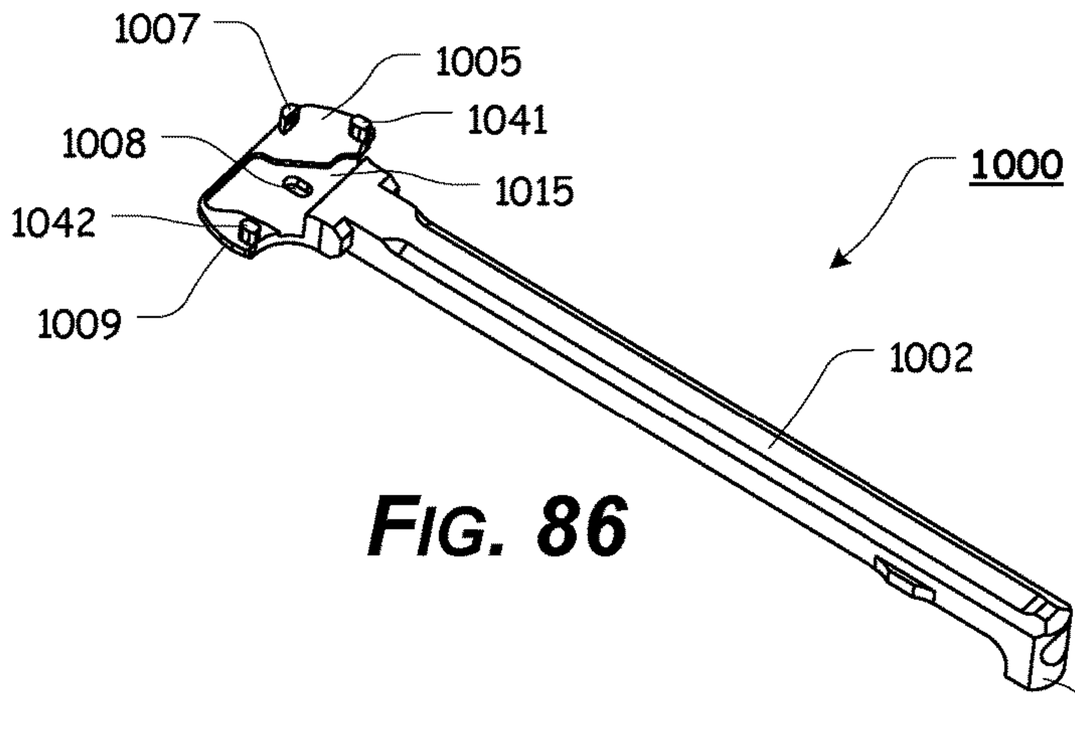

FIG. 86

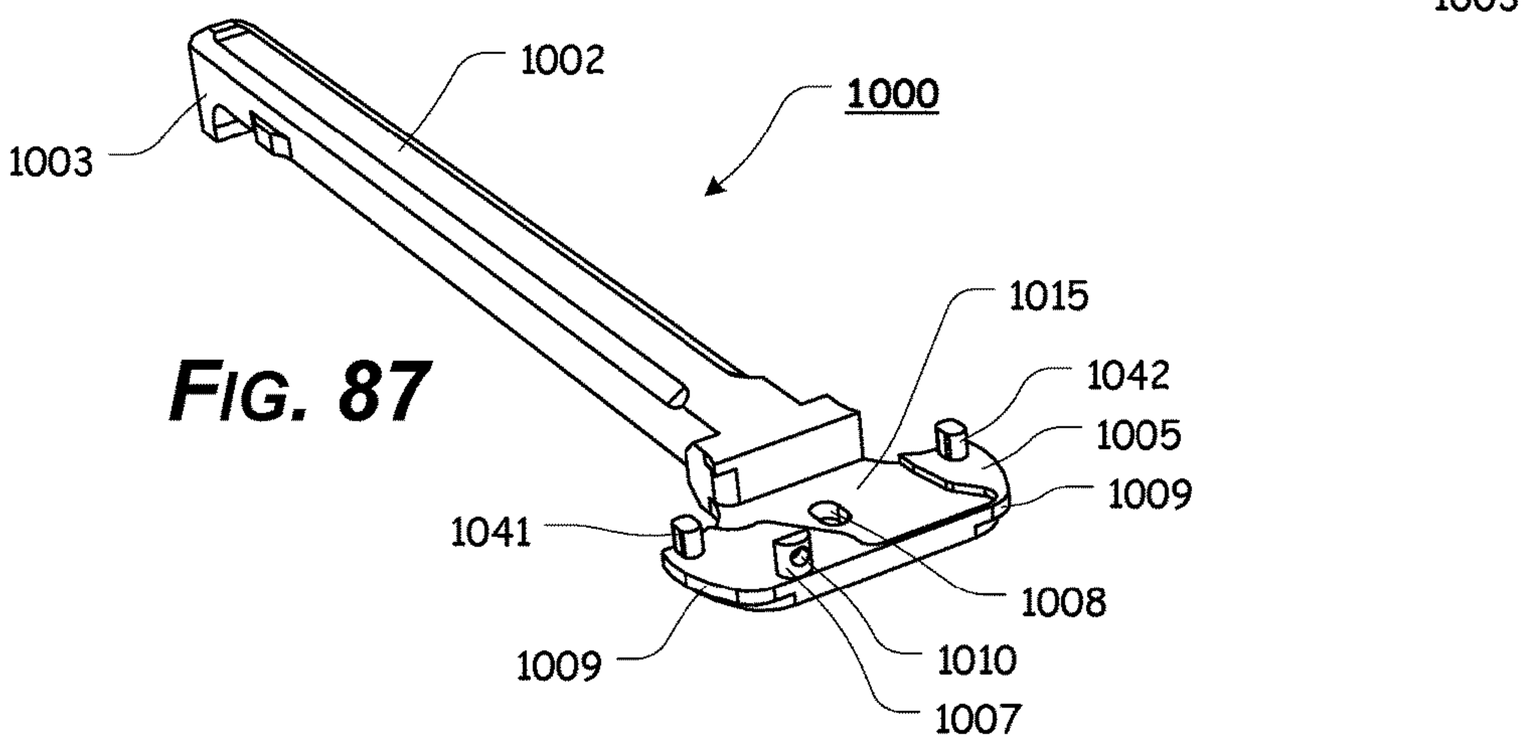

FIG. 87

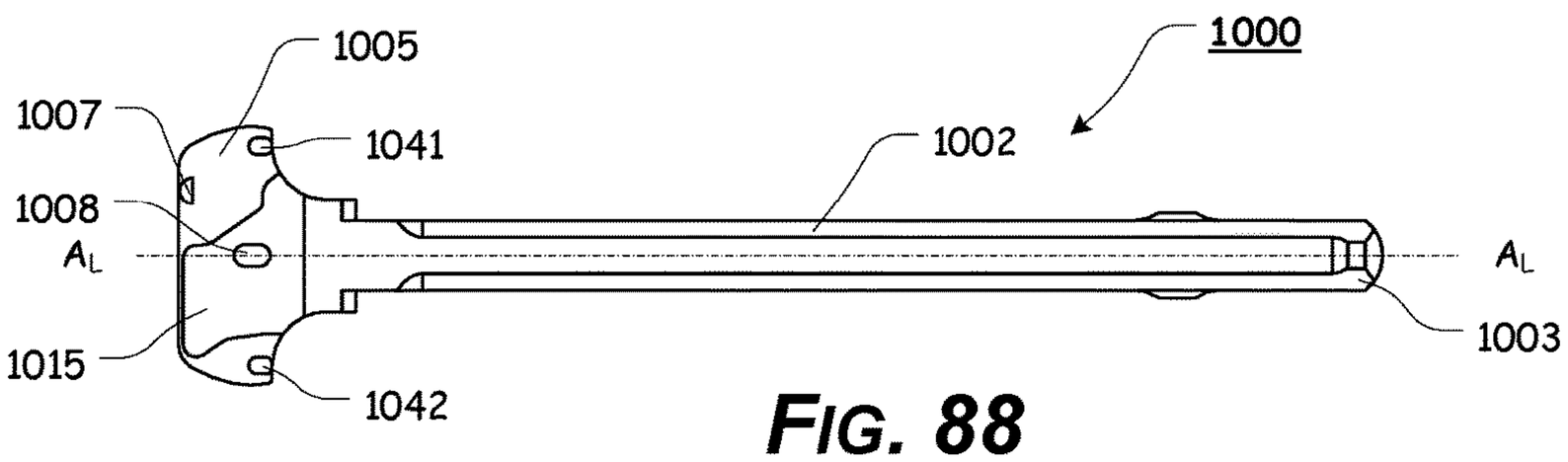

FIG. 88

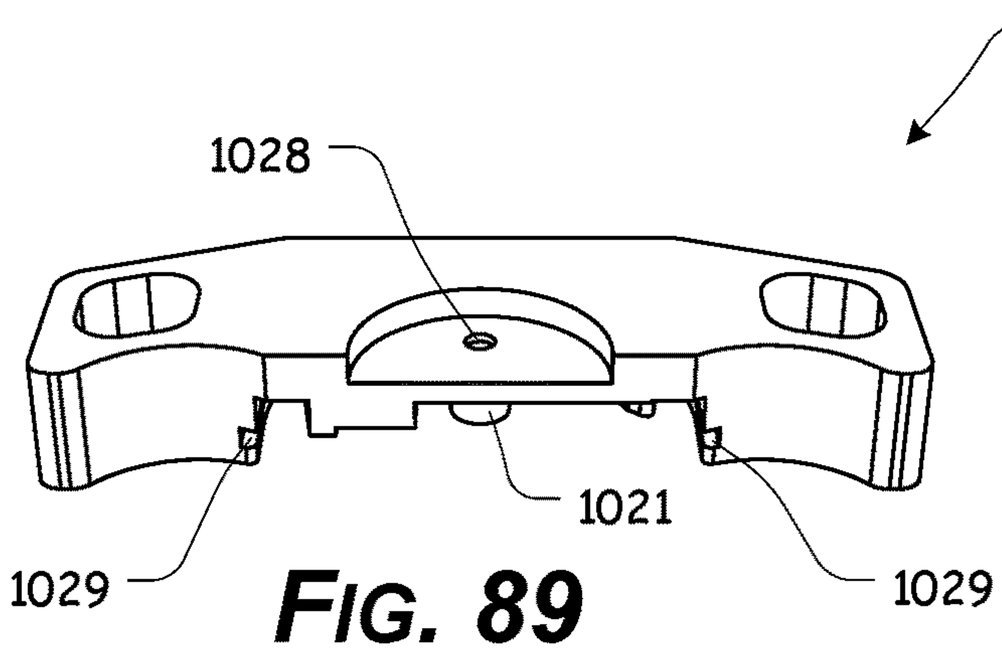

FIG. 89

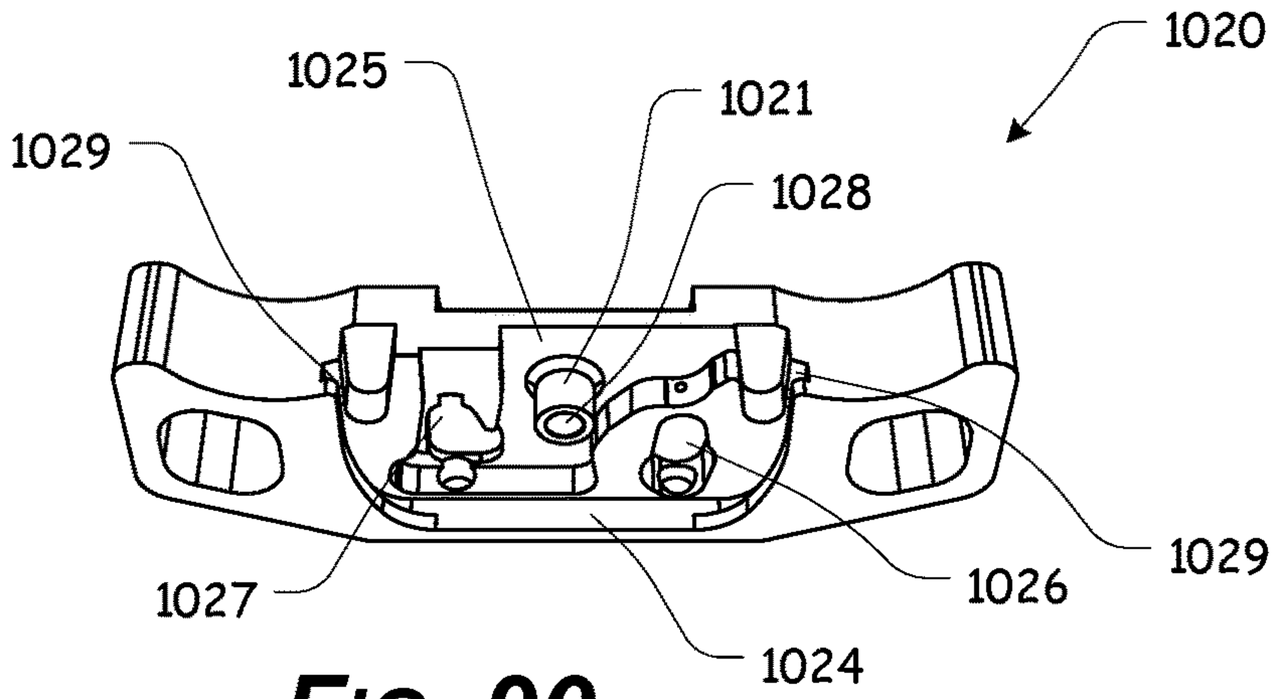

FIG. 90

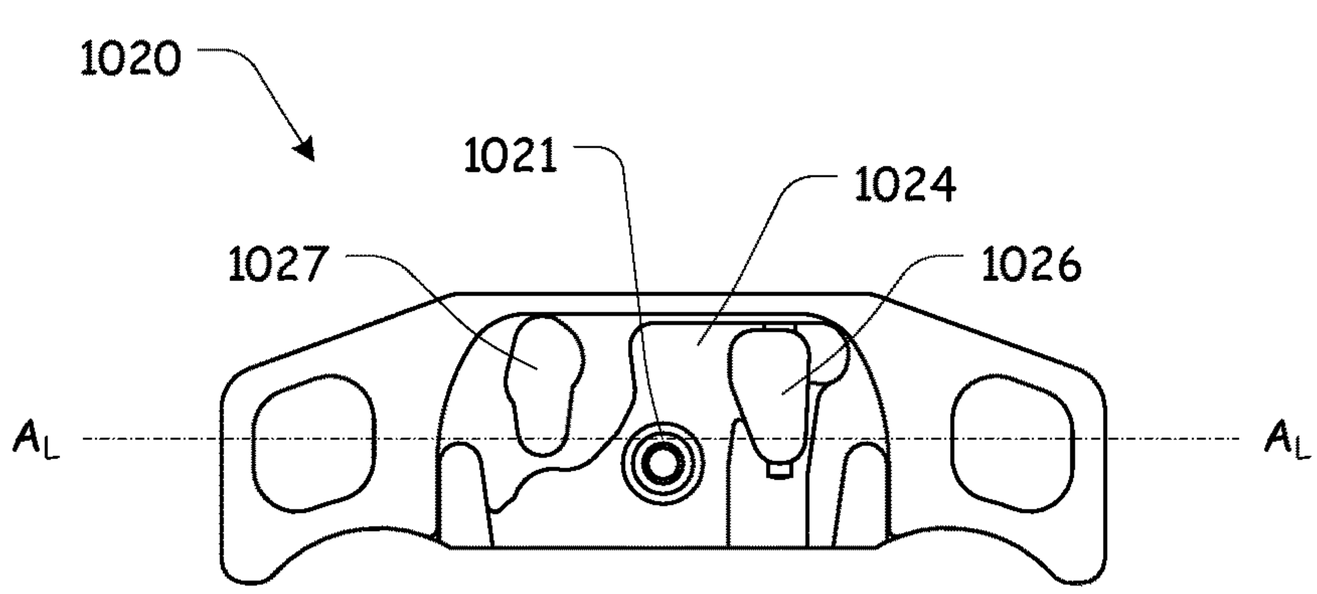

FIG. 91

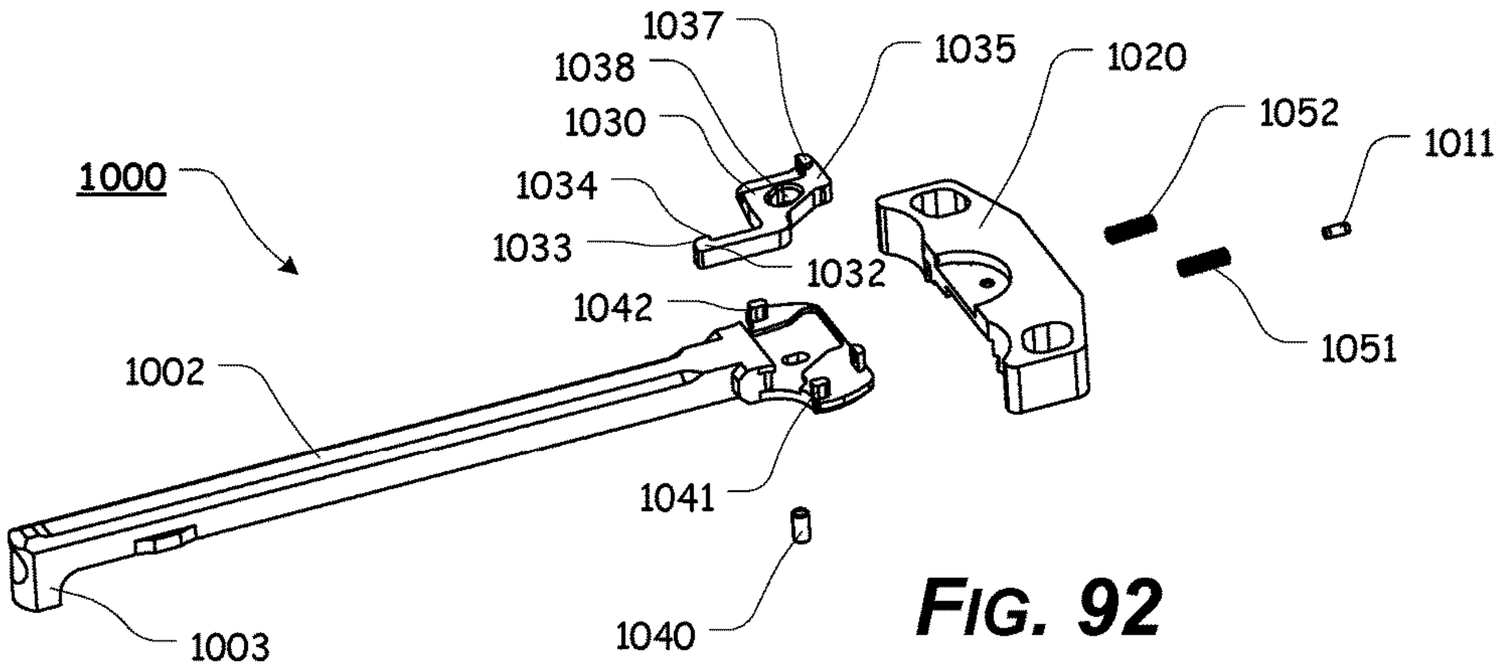
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FIG. 92

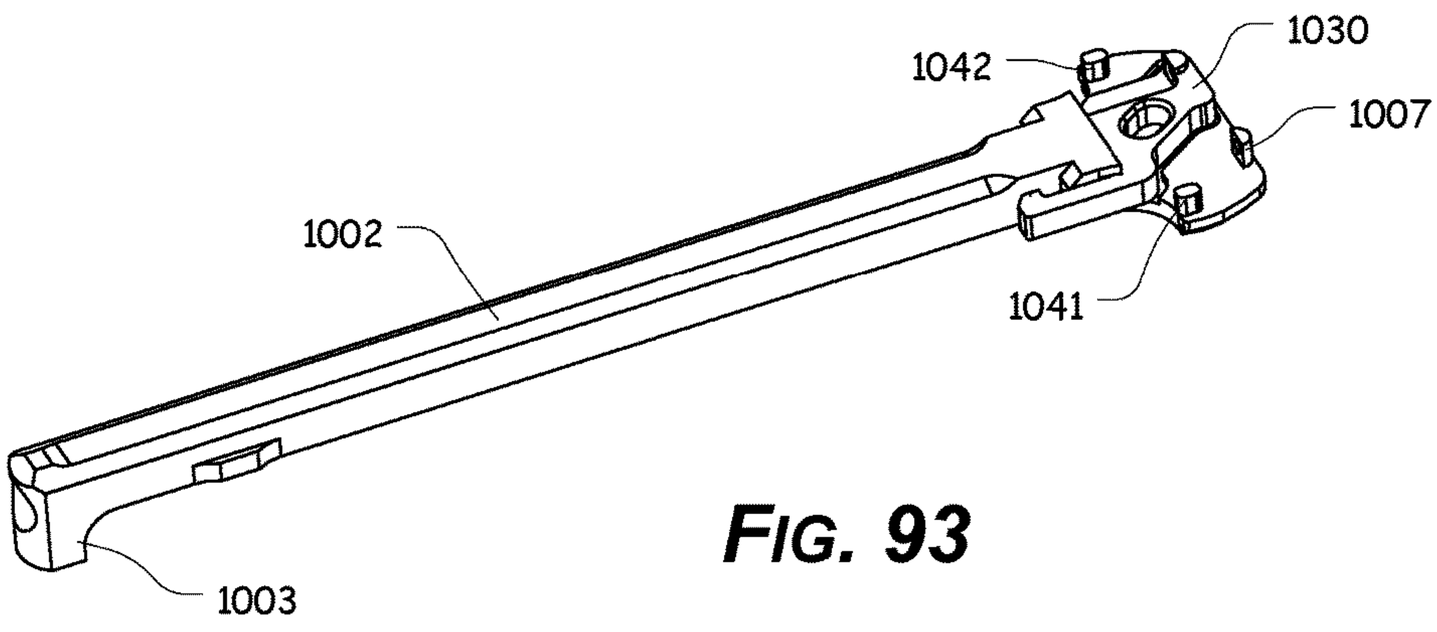
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FIG. 93

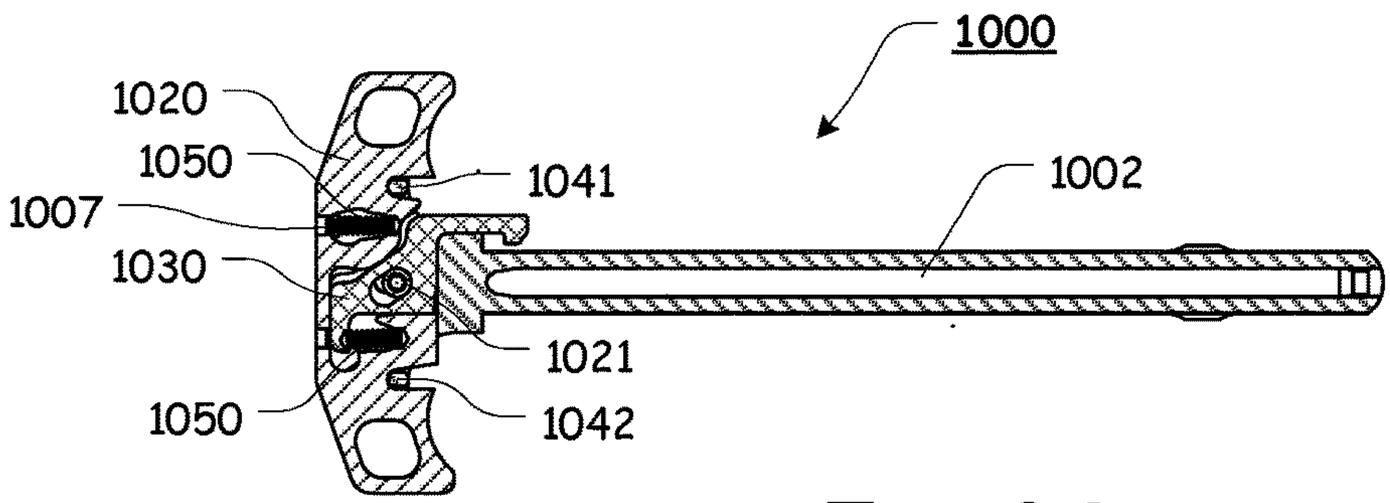

FIG. 94

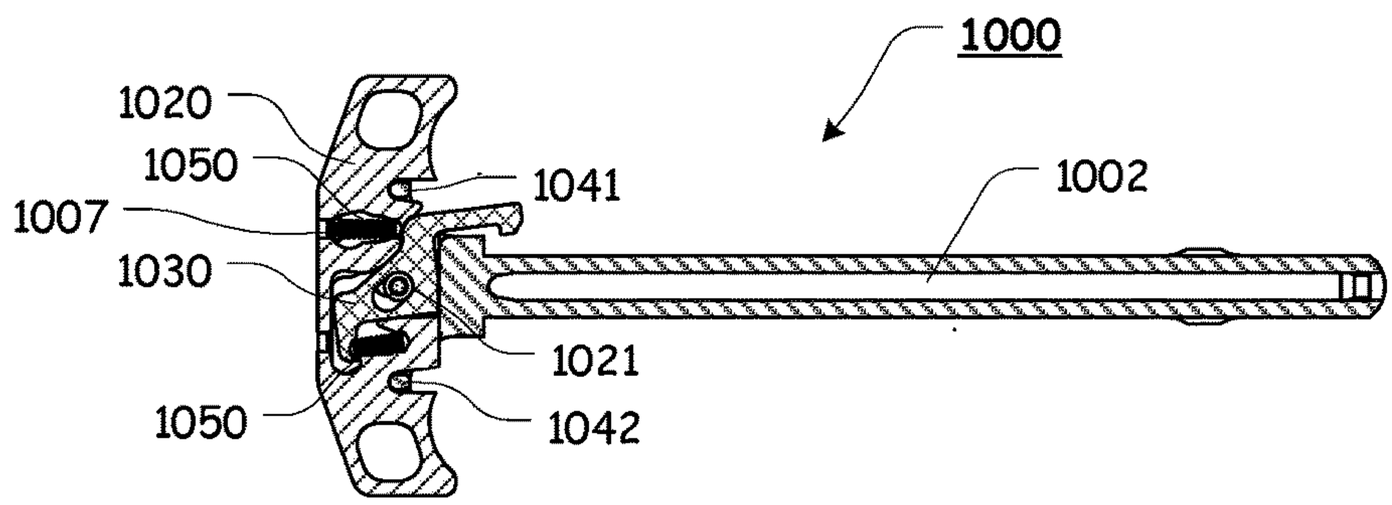

FIG. 95

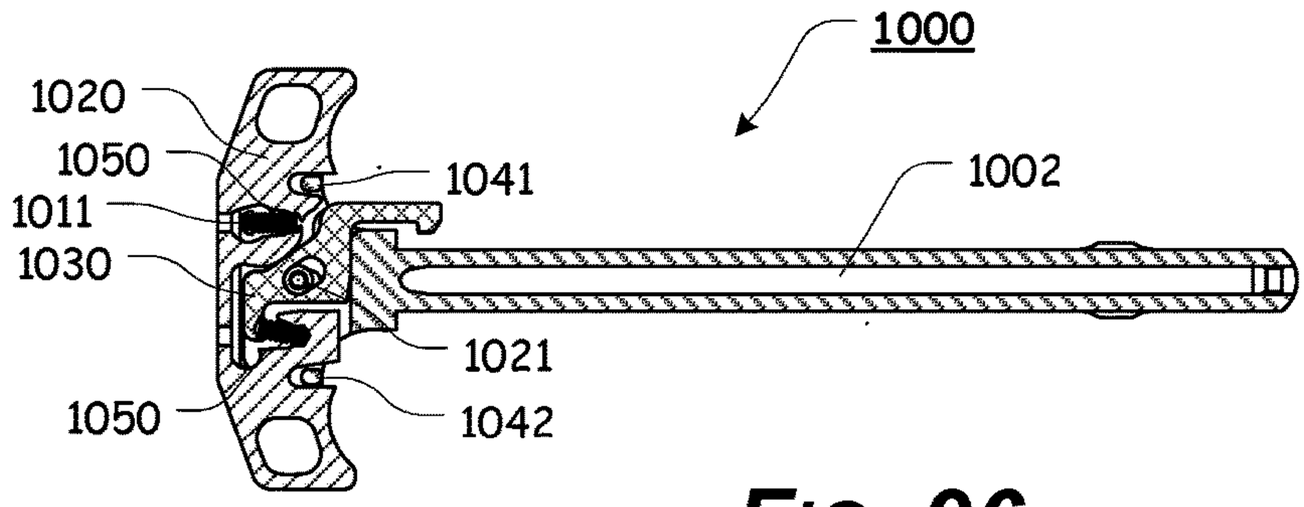

FIG. 96

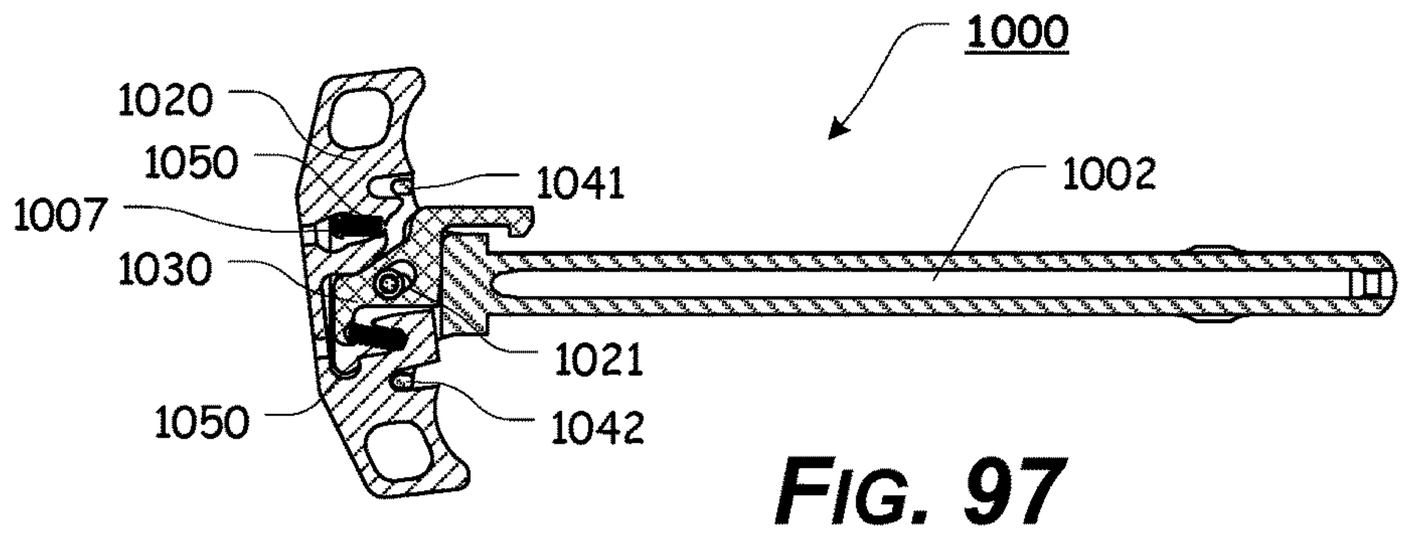
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FIG. 97

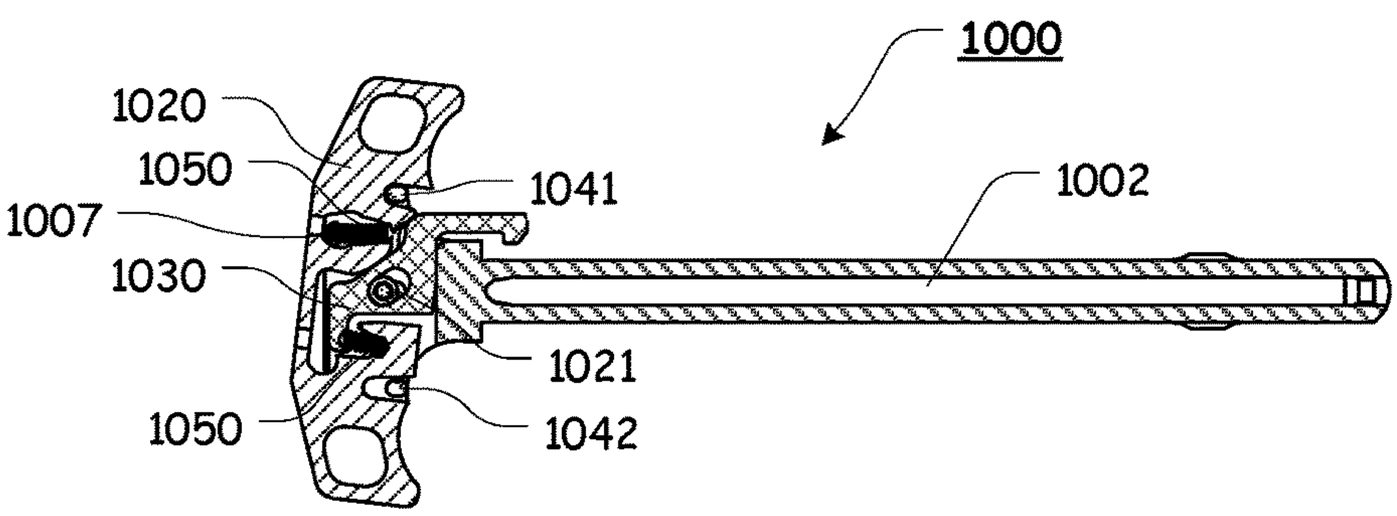
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FIG. 98

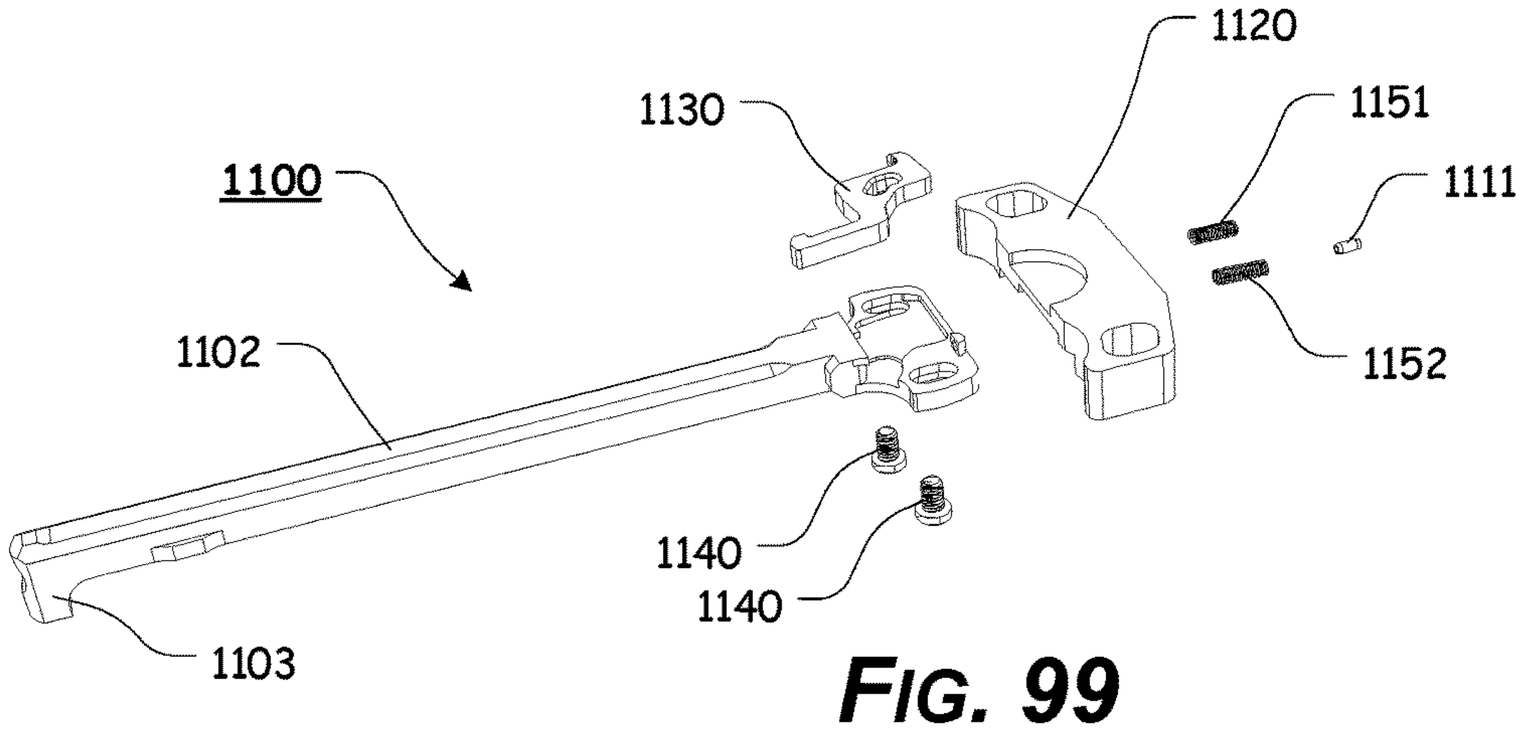

FIG. 99

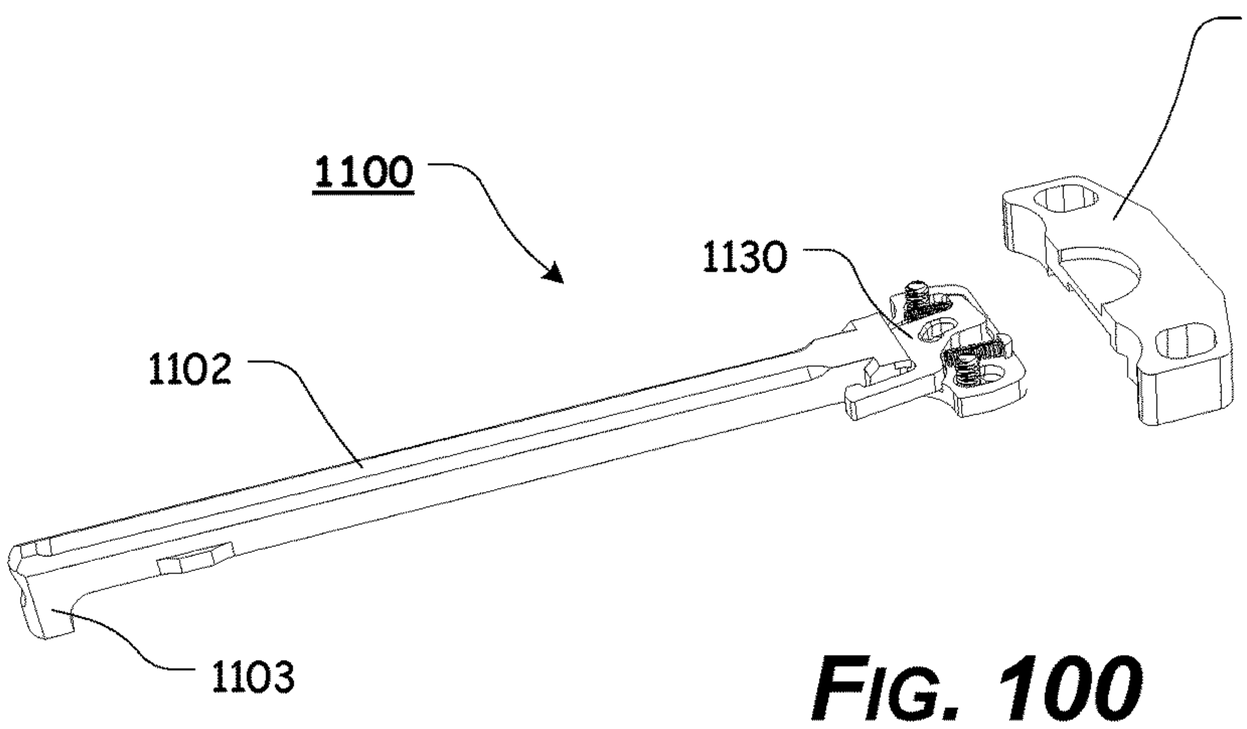

FIG. 100

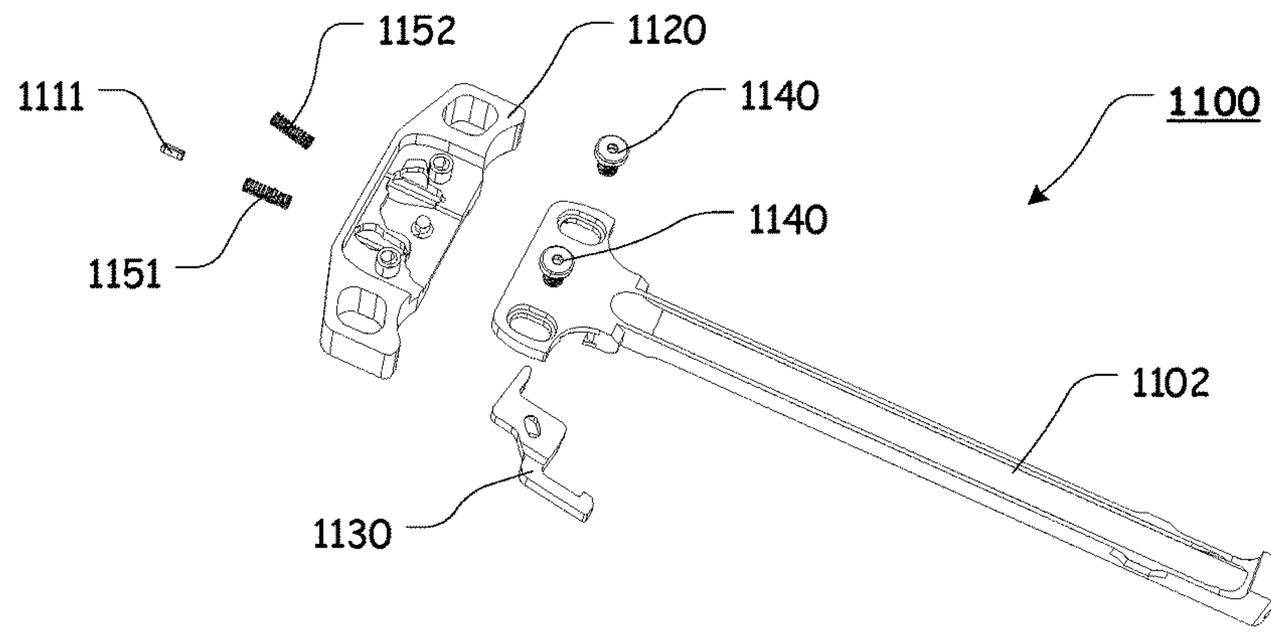

FIG. 101

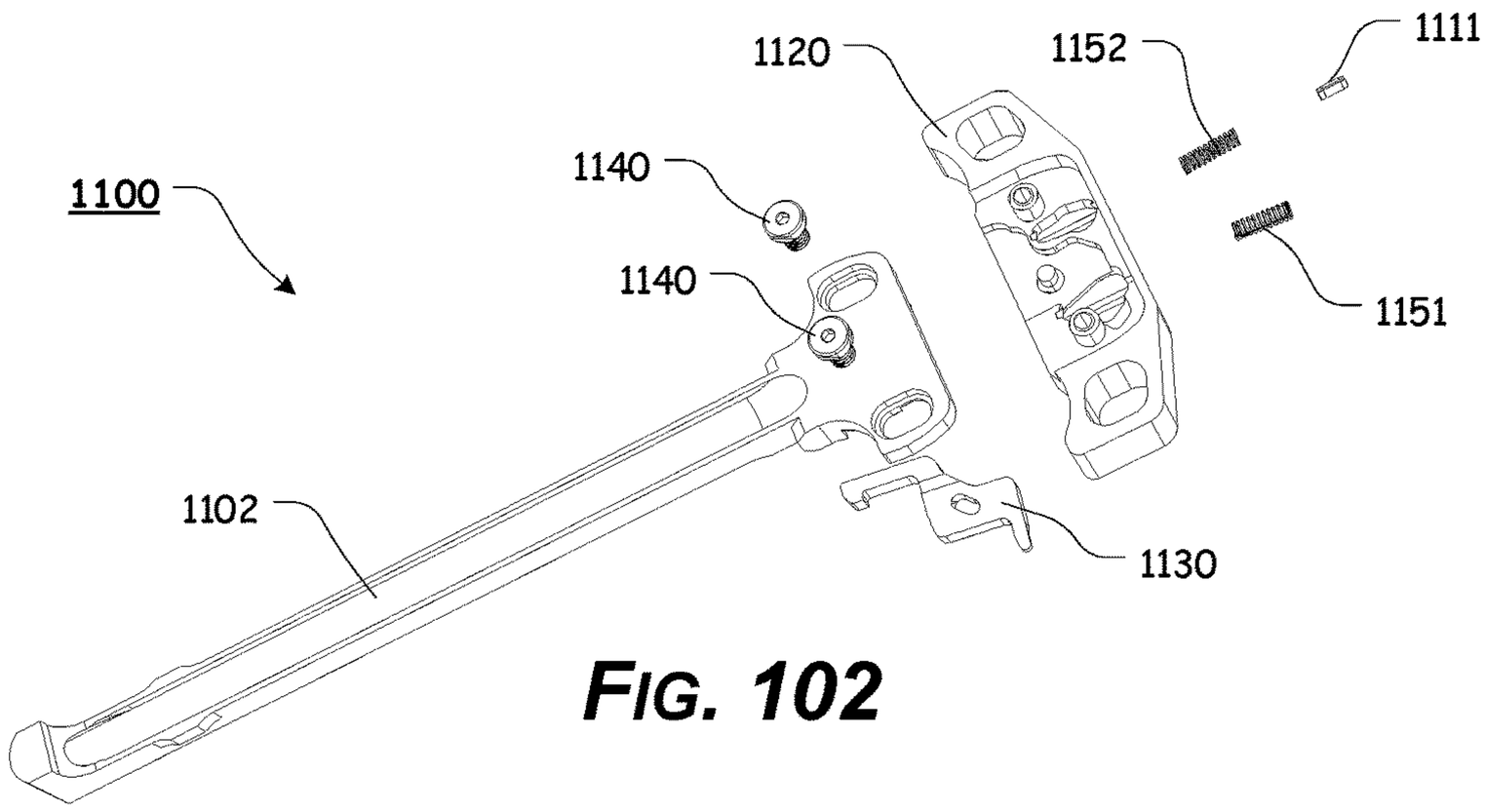

FIG. 102

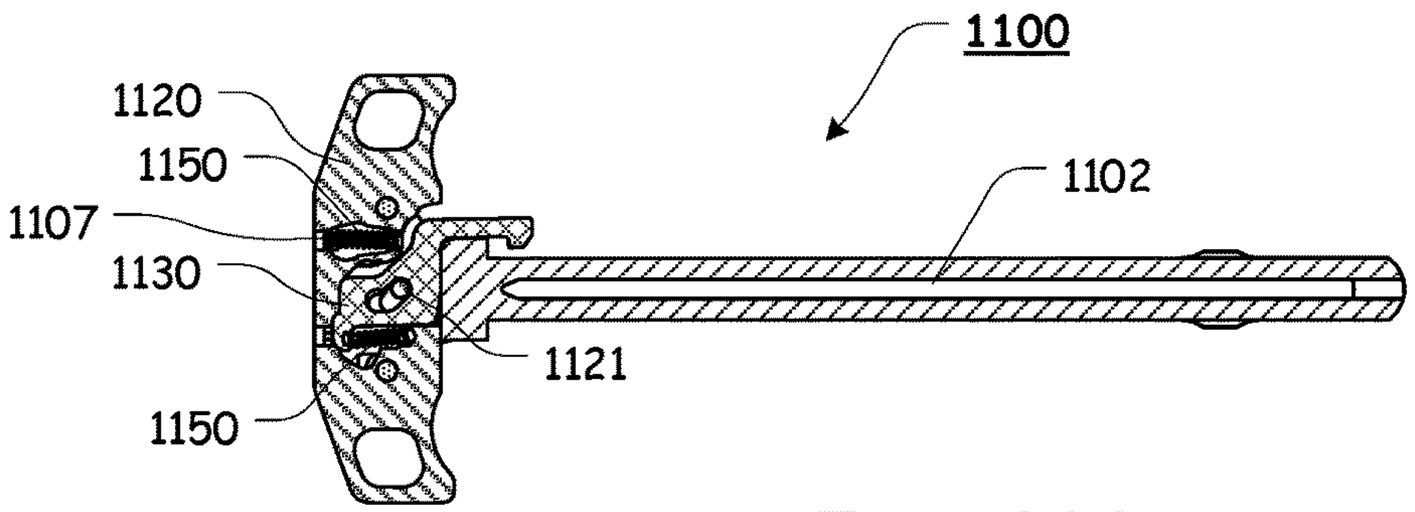

FIG. 103

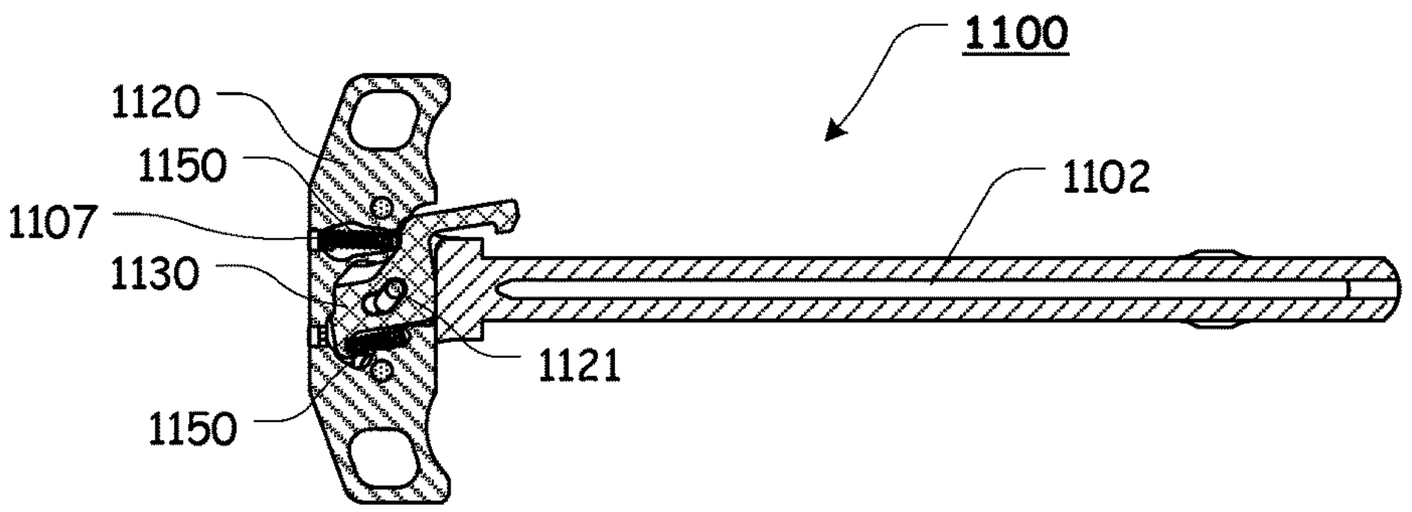

FIG. 104

CHARGING HANDLE ASSEMBLY

CROSS-REFERENCE TO RELATED APPLICATIONS

This patent application is a Continuation-In-Part of U.S. patent application Ser. No. 15/450,754, filed Nov. 7, 2017, now U.S. Pat. No. 9,810,494, which is a Continuation of U.S. patent application Ser. No. 15/001,000, filed Jan. 19, 2016, now U.S. Pat. No. 9,587,896, which claims the benefit of U.S. Patent Application Ser. No. 62/105,274, filed Jan. 20, 2015, the disclosures of which are incorporated herein in their entireties by reference.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

Not Applicable.

REFERENCE TO SEQUENCE LISTING, A TABLE, OR A COMPUTER PROGRAM LISTING COMPACT DISC APPENDIX

Not Applicable.

NOTICE OF COPYRIGHTED MATERIAL

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present disclosure relates generally to the field of firearms. More specifically, the present disclosure relates to an ambidextrous charging handle adaptable to be used with a firearm, such as the AR-15, M4, and the like.

2. Description of Related Art

The AR-15 is based on the AR-10, which was designed by Eugene Stoner, Robert Fremont, and L. James Sullivan of the Fairchild ArmaLite Corporation in 1957. Today, there are numerous variants of the AR-15 that are manufactured by a number of companies. The AR-15 and its various related derivative platforms are used by civilians, law enforcement personnel, and military forces around the world.

Various firearms, such as, for example, the AR-15 or M-4 style firearms utilize a charging handle, located at top and substantially parallel to the bolt of the firearm, to manipulate the bolt and open the firearm's action and/or manually load a cartridge into the firearm's chamber.

The typical charging handle comprises an elongate portion of material that extends from a substantially T-shaped rear handle to a forward end adapted to engage the firearms bolt.

A spring-loaded, pivoting latch includes a hook or claw that engages a recess in the upper receiver of the firearm, to maintain the charging handle in a closed position relative to the upper receiver of the firearm. The pivoting latch is typically located on the left side of the charging handle and when the spring bias of the pivoting latch is overcome, by a user pulling reward on the left side of the charging handle, engaging the pivoting latch, the latch pivots to an unlocked position and allows the user to pull the charging handle rearward to manipulate the bolt.

Any discussion of documents, acts, materials, devices, articles, or the like, which has been included in the present specification is not to be taken as an admission that any or all of these matters form part of the prior art base or were common general knowledge in the field relevant to the present disclosure as it existed before the priority date of each claim of this application.

BRIEF SUMMARY OF THE INVENTION

Initially, the latch could only be manipulated from the left side of the firearm. Over time, modify charging handles have been developed that include an ambidextrous latch mechanism that allows the latch to be manipulated using a lever located on the right and/or left side of the charging handle. However, known ambidextrous charging handles utilize multiple pivot pins and a pivot at multiple points. Additionally, known ambidextrous charging handles typically include a combined latch and lever, wherein the latch (including the hook or claw) is an integral component of at least one of the levers. This results in an overly complicated design, which is prone to failure at multiple points.

The disadvantages and shortcomings of the prior art are overcome by the features and elements of the ambidextrous charging handle of the present disclosure. The advantages of the present disclosure are preferably attained by providing, in a first, exemplary, nonlimiting embodiment, an ambidextrous charging handle that comprises a charging handle body, a lever element, a latch element, and a spring biasing element.

The charging handle body comprises an elongate portion of material that extends along a longitudinal axis from a substantially T-shaped rear handle to a forward end having a bolt engagement element. The T-shaped rear handle includes a right handle portion and a left handle portion and a handle recess formed so as to slidably receive at least a portion of a lever element. The handle recess includes a slide pin or slide protrusion extending from a bottom wall of the handle recess.

The lever element comprises an elongate portion of material that includes a lever recess formed in a forward portion of the lever element. In various exemplary embodiments, the lever recess is formed at an obtuse angle, e, relative to a longitudinal axis of the lever element. An elongate lever channel is formed through a portion of the lever element from a top side to a bottom side, perpendicular to the longitudinal axis of the lever element. The lever channel is shaped so as to interact with the slide pin or slide protrusion to enable the lever element to be slidable forward and rearward, relative to the longitudinal axis of the charging handle, within the handle recess.

The latch element extends from a first portion to a second portion and a claw (including a ramp surface and shoulder) is formed proximate the first portion of the latch element. A latch protrusion is formed proximate the second portion of the latch element. The latch protrusion is formed so as to interact with the lever recess such that movement of the lever element along the longitudinal axis of the charging handle produces lateral (side-to-side), non-pivoting, movement of the latch element relative to the longitudinal axis of the charging handle.

The spring biasing element interacts between an interior side wall of the charging handle body and the lever element to bias the lever element in a forward or locked position. As the lever element is urged rearward, from either the right handle portion or the left handle portion of the charging handle body, the spring bias of the spring biasing element can be overcome to move the latch element from the locked to unlocked position.

In an exemplary, nonlimiting embodiment, the ambidextrous charging handle comprises a charging handle body, a latch element, a first lever element, a second lever element, and a spring biasing element.

The charging handle body comprises an elongate portion of material that extends along a longitudinal axis from a rear handle portion to a forward end having a bolt engagement element. The rear handle portion includes a handle recess formed so as to pivotably receive at least a portion of the latch element, the first lever element, the second lever element, and the spring biasing element. The handle recess includes a slide pin or slide protrusion extending from a bottom wall of the handle recess. Additionally, a camming element extends from the bottom wall of the handle recess.

The latch element extends from a first portion to a second portion and a claw (including a ramp surface and shoulder) is formed proximate the first portion of the latch element. A primary latch protrusion is formed proximate the second portion of the latch element, in a top portion of the latch element, while a secondary latch protrusion is formed proximate the second portion of the latch element, in a bottom portion of the latch element.

The first lever element comprises an elongate portion of material that extends from a latch engagement portion to a finger engagement portion. A slide pin aperture is formed through the latch engagement portion, such that when the slide pin aperture interacts with the slide protrusion, the first lever element is able to be pivoted from a locked position to an unlocked position. The first lever element includes a curved, camming surface formed so as to interact with a secondary latch protrusion of the latch element. A spring engagement protrusion extends from a portion of the first lever element so as to engage and interact with the spring biasing element.

The second lever element comprises an elongate portion of material that also extends from a latch engagement portion to a finger engagement portion. A slide pin aperture is formed through the latch engagement portion, such that when the slide pin aperture interacts with the slide protrusion, the second lever element is able to be pivoted from a locked position to an unlocked position. The second lever element includes a lever recess formed so as to interact with a primary latch protrusion of the latch element. A spring engagement protrusion extends from a portion of the second lever element so as to engage and interact with the spring biasing element.

The primary latch protrusion is formed so as to interact with the lever recess of the second lever element such that rotation of the second lever element about the slide protrusion produces lateral movement of the latch element relative to the longitudinal axis of the charging handle.

The secondary latch protrusion is formed so as to interact with the camming surface of the first lever element such that rotation of the first lever element about the slide protrusion also produces lateral movement of the latch element relative to the longitudinal axis of the charging handle. When the camming surface of the first lever element produces movement of the latch element (via interaction of the secondary latch protrusion and the camming surface), the primary latch protrusion interacts with the lever recess of the second lever element to produce rotational movement of the second lever element.

The spring biasing element interacts between the spring engagement protrusion of the first lever element and the spring engagement protrusion of the second lever element to bias the first lever element and the second lever element against one another in a forward or locked position. As the first lever element and/or the second lever element is urged rearward, the spring bias of the spring biasing element can be overcome to move the latch element from the locked to unlocked position.

In various exemplary, nonlimiting embodiments, the latch element is positioned such that movement of the handle element along the longitudinal axis of the charging handle (forward and backward) produces lateral (side-to-side), non-pivoting, movement of the latch element relative to the longitudinal axis of the charging handle. Additionally, movement of one side or the other side of the handle element rearward (rotational movement of the handle element), relative to the longitudinal axis of the charging handle, also produces lateral (side-to-side), non-pivoting, movement of the latch element relative to the longitudinal axis of the charging handle.

In various exemplary, nonlimiting embodiments, the charging handle assembly comprises at least some of a charging handle body that extends from a base portion; a handle element, wherein the handle element is attached or coupled to the base portion of the charging handle body, such that the handle element is repeatably slidable relative to the base portion of the charging handle body and is also at least partially rotatable relative to the base portion of the charging handle body; and a latch element having an elongate pivot aperture formed therethrough, wherein the latch element is repeatably slidable relative to the handle element and is also at least partially rotatable relative to the handle element, and wherein at least a portion of the latch element is formed so as to interact with at least a portion of said handle recess such that rotational or longitudinal movement of said handle element relative to a longitudinal axis of said charging handle produces lateral, translational movement of said latch element relative to said charging handle body.

In various exemplary, nonlimiting embodiments, rotational movement of said latch element does not induce movement of said handle element.

In various exemplary, nonlimiting embodiments, the charging handle body comprises an elongate portion of material that extends along said longitudinal axis from said base portion to a forward end having a bolt engagement element.

In various exemplary, nonlimiting embodiments, the charging handle further includes a first spring biasing element that biases said handle element toward a locked position.

In various exemplary, nonlimiting embodiments, the charging handle further includes a second spring biasing element that biases said latch element toward a locked position.

In various exemplary, nonlimiting embodiments, the handle element is attached or coupled to the base portion of the charging handle body via interaction of a pin positioned through an elongate aperture formed through a portion of the base portion and attached or coupled to the handle element.

In various exemplary, nonlimiting embodiments, the elongate aperture formed through a portion of the base portion is formed so as to have a longitudinal axis that is substantially parallel to the longitudinal axis of the charging handle body.

In various exemplary, nonlimiting embodiments, the charging handle further includes a first stop protrusion and a second stop protrusion, wherein the first stop protrusion and the second stop protrusion extend from at least a portion of the base portion so as to interact with the handle element to limit forward or rotational movement of the handle element relative to the base portion.

In various exemplary, nonlimiting embodiments, the base portion is a substantially T-shaped base portion.

In various exemplary, nonlimiting embodiments, the charging handle assembly comprises at least some of a charging handle body extending from a base portion; a handle element attached or coupled to the base portion, such that the handle element is repeatably slidable relative to the base portion and is also at least partially rotatable relative to the base portion; and a latch element having an elongate pivot aperture formed therethrough, wherein the latch element is repeatably slidable relative to the handle element and is also at least partially rotatable relative to the handle element, and wherein at least a portion of the latch element is formed so as to interact with at least a portion of said handle recess such that rotational or longitudinal movement of said handle element relative to a longitudinal axis of said charging handle produces lateral, translational movement of said latch element relative to said charging handle body.

In various exemplary, nonlimiting embodiments, the charging handle assembly comprises at least some of a charging handle body having a base portion; a handle element slidably and at least partially rotatable relative to the base portion; and a latch element slidable and at least partially rotatable relative to the handle element, and wherein at least a portion of the latch element is formed so as to interact with at least a portion of said handle recess such that rotational or longitudinal movement of said handle element relative to a longitudinal axis of said charging handle produces lateral, translational movement of said latch element relative to said charging handle body.

Accordingly, the present disclosure separately provides an improved ambidextrous charging handle for firearms.

The present disclosure separately provides an improved ambidextrous charging handle for firearms having a simplified design.

The present disclosure separately provides an improved ambidextrous charging handle for firearms, which provides ambidextrous functions with a single slide pin or slide protrusion.

The present disclosure separately provides an improved ambidextrous charging handle for firearms having a latch element that moves from a locked to an unlocked position in a lateral or linear, nonrotating, fashion.

These and other aspects, features, and advantages of the present disclosure are described in or are apparent from the following detailed description of the exemplary, non-limiting embodiments of the present disclosure and the accompanying figures. Other aspects and features of embodiments of the present disclosure will become apparent to those of ordinary skill in the art upon reviewing the following description of specific, exemplary embodiments of the present disclosure in concert with the figures. While features of the present disclosure may be discussed relative to certain embodiments and figures, all embodiments of the present disclosure can include one or more of the features discussed herein. Further, while one or more embodiments may be discussed as having certain advantageous features, one or more of such features may also be used with the various embodiments of the disclosure discussed herein. In similar fashion, while exemplary embodiments may be discussed below as device, system, or method embodiments, it is to be understood that such exemplary embodiments can be implemented in various devices, systems, and methods of the present disclosure.

Any benefits, advantages, or solutions to problems that are described herein with regard to specific embodiments are not intended to be construed as a critical, required, or essential feature(s) or element(s) of the present disclosure or the claims.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

As required, detailed exemplary embodiments of the present disclosure are disclosed herein; however, it is to be understood that the disclosed embodiments are merely exemplary of what may be embodied in various and alternative forms, within the scope of the present disclosure. The figures are not necessarily to scale; some features may be exaggerated or minimized to illustrate details of particular components. Therefore, specific structural and functional details disclosed herein are not to be interpreted as limiting, but merely as a basis for the claims and as a representative basis for teaching one skilled in the art to employ the present disclosure.

The exemplary embodiments of the present disclosure will be described in detail, with reference to the following figures, wherein like reference numerals refer to like parts throughout the several views, and wherein:

FIG. **1** illustrates a front perspective view of an exemplary embodiment of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **2** illustrates a top view of an exemplary embodiment of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **3** illustrates a bottom view of an exemplary embodiment of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **4** illustrates a right side view of an exemplary embodiment of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **5** illustrates a left side view of an exemplary embodiment of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **6** illustrates a front view of an exemplary embodiment of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **7** illustrates a rear view of an exemplary embodiment of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **8** illustrates a top view of an exemplary embodiment of the lever element, the latch element, and the spring biasing element of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **9** illustrates a bottom view of an exemplary embodiment of the lever element, the latch element, and the spring biasing element of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **10** illustrates an exploded, perspective view of an exemplary embodiment of the lever element, the latch element, and the spring biasing element of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **11** illustrates an upper, rear, perspective view of an exemplary embodiment of the lever element, the latch

element, and the spring biasing element of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **12** illustrates a left side, lower, perspective view of an exemplary embodiment of the lever element, the latch element, and the spring biasing element of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **13** illustrates a upper, front, perspective view of an exemplary embodiment of the lever element, the latch element, and the spring biasing element of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **14** illustrates a lower, rear, perspective view of an exemplary embodiment of the lever element, the latch element, and the spring biasing element of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **15** illustrates a top, cross-sectional view of an exemplary embodiment of the charging handle body, according to an exemplary embodiment of the present disclosure;

FIG. **16** illustrates a top, cross-sectional view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in the locked position, according to an exemplary embodiment of the present disclosure;

FIG. **17** illustrates a top, cross-sectional view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in the unlocked position, according to an exemplary embodiment of the present disclosure;

FIG. **18** illustrates a top, cross-sectional view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in the locked position, according to an exemplary embodiment of the present disclosure;

FIG. **19** illustrates a top, cross-sectional view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in the locked position, according to an exemplary embodiment of the present disclosure;

FIG. **20** illustrates a top, cross-sectional view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in the locked position, according to an exemplary embodiment of the present disclosure;

FIG. **21** illustrates a top view of an exemplary embodiment of an ambidextrous charging handle body, wherein the latch element is in the locked position, according to an exemplary embodiment of the present disclosure;

FIG. **22** illustrates a side view of an exemplary embodiment of an ambidextrous charging handle body, wherein the latch element is in the locked position, according to an exemplary embodiment of the present disclosure;

FIG. **23** illustrates a side view of an exemplary embodiment of an ambidextrous charging handle body, wherein the latch element is in the locked position, according to an exemplary embodiment of the present disclosure;

FIG. **24** illustrates a side view of an exemplary embodiment of an ambidextrous charging handle body, wherein the latch element is in the locked position, according to an exemplary embodiment of the present disclosure;

FIG. **25** illustrates a top view of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in the locked position, according to an exemplary embodiment of the present disclosure;

FIG. **26** illustrates a top, cross-sectional view of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in the locked position, according to an exemplary embodiment of the present disclosure;

FIG. **27** illustrates a top, cross-sectional view of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in the locked position, according to an exemplary embodiment of the present disclosure;

FIG. **28** illustrates a top, cross-sectional view of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in the locked position, according to an exemplary embodiment of the present disclosure;

FIG. **29** illustrates a top view of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in the locked position, according to an exemplary embodiment of the present disclosure;

FIG. **30** illustrates a top, cross-sectional view of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in the locked position, according to an exemplary embodiment of the present disclosure;

FIG. **31** illustrates a side view of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in the locked position, according to an exemplary embodiment of the present disclosure;

FIG. **32** illustrates a top, cross-sectional view of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in the locked position, according to an exemplary embodiment of the present disclosure;

FIG. **33** illustrates a top view of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in the locked position, according to an exemplary embodiment of the present disclosure;

FIG. **34** illustrates a top, cross-sectional view of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in the locked position, according to an exemplary embodiment of the present disclosure;

FIG. **35** illustrates a front perspective view of an exemplary embodiment of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **36** illustrates a top view of an exemplary embodiment of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **37** illustrates a bottom view of an exemplary embodiment of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **38** illustrates a right side view of an exemplary embodiment of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **39** illustrates a left side view of an exemplary embodiment of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **40** illustrates a front view of an exemplary embodiment of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **41** illustrates a rear view of an exemplary embodiment of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **42** illustrates a top view of an exemplary embodiment of the lever element, the latch element, and the spring

biasing element of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **43** illustrates a bottom view of an exemplary embodiment of the lever element, the latch element, and the spring biasing element of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **44** illustrates an exploded, perspective view of an exemplary embodiment of the lever element, the latch element, and the spring biasing element of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **45** illustrates an upper, front, perspective view of an exemplary embodiment of the lever element, the latch element, and the spring biasing element of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **46** illustrates a left side, lower, perspective view of an exemplary embodiment of the lever element, the latch element, and the spring biasing element of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **47** illustrates a upper, front, perspective view of an exemplary embodiment of the lever element, the latch element, and the spring biasing element of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **48** illustrates a lower, rear, perspective view of an exemplary embodiment of the lever element, the latch element, and the spring biasing element of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **49** illustrates a top, cross-sectional view of an exemplary embodiment of the charging handle body, according to an exemplary embodiment of the present disclosure;

FIG. **50** illustrates a top, cross-sectional view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in the locked position, according to an exemplary embodiment of the present disclosure;

FIG. **51** illustrates a top, cross-sectional view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in the locked position, according to an exemplary embodiment of the present disclosure;

FIG. **52** illustrates a top view of an exemplary embodiment of the lever element, the latch element, and the spring biasing element of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **53** illustrates a top, cross-sectional view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in the locked position, according to an exemplary embodiment of the present disclosure;

FIG. **54** illustrates a top, cross-sectional view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in the locked position, according to an exemplary embodiment of the present disclosure;

FIG. **55** illustrates a top view of an exemplary embodiment of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **56** illustrates a top, cross-sectional view of an exemplary embodiment of the charging handle body, according to an exemplary embodiment of the present disclosure;

FIG. **57** illustrates an exploded, top view of an exemplary embodiment of the first lever element, the second lever element, the latch element, and the spring biasing element of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **58** illustrates an exploded, bottom view of an exemplary embodiment of the first lever element, the second lever element, the latch element, and the spring biasing element of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **59** illustrates upper, front, perspective view of an exemplary embodiment of the first lever element, the second lever element, the latch element, and the spring biasing element of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **60** illustrates an upper, front, exploded, perspective view of an exemplary embodiment of the first lever element, the second lever element, the latch element, and the spring biasing element of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **61** illustrates lower, rear, perspective view of an exemplary embodiment of the first lever element, the second lever element, the latch element, and the spring biasing element of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **62** illustrates lower, rear, exploded, perspective view of an exemplary embodiment of the first lever element, the second lever element, the latch element, and the spring biasing element of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **63** illustrates a top, cross-sectional view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in the locked position, according to an exemplary embodiment of the present disclosure;

FIG. **64** illustrates a top, cross-sectional view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the second lever element is rotated rearward and the latch element is in the unlocked position, according to an exemplary embodiment of the present disclosure;

FIG. **65** illustrates a top, cross-sectional view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the first lever element is rotated rearward and the latch element is in the unlocked position, according to an exemplary embodiment of the present disclosure;

FIG. **66** illustrates a top, cross-sectional view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the first lever element is rotated rearward, the latch element is in the unlocked position, and the second lever element is shown in broken lines to further illustrate the interaction of the first lever element and the latch element, according to an exemplary embodiment of the present disclosure;

FIG. **67** illustrates an upper, front, left, perspective view showing various components of an exemplary embodiment of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **68** illustrates an upper, rear, right, exploded view showing various components of an exemplary embodiment of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **69** illustrates a top, exploded view showing various components of an exemplary embodiment of an ambidex-

trous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **70** illustrates a bottom, exploded view showing various components of an exemplary embodiment of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **71** illustrates a right side, exploded view showing various components of an exemplary embodiment of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **72** illustrates a cutaway view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in a locked position, according to an exemplary embodiment of the present disclosure;

FIG. **73** illustrates a cutaway view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in a locked position, according to an exemplary embodiment of the present disclosure;

FIG. **74** illustrates a cutaway view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in an unlocked position, according to an exemplary embodiment of the present disclosure;

FIG. **75** illustrates a cutaway view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in an unlocked position, according to an exemplary embodiment of the present disclosure;

FIG. **76** illustrates a rear, left, perspective view of an exemplary embodiment of charging handle body, according to an exemplary embodiment of the present disclosure;

FIG. **77** illustrates a front, left, perspective view of an exemplary embodiment of charging handle body, according to an exemplary embodiment of the present disclosure;

FIG. **78** illustrates an upper, front, left, perspective, exploded view showing various components of an exemplary embodiment of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **79** illustrates a cutaway view showing various components of an exemplary embodiment of an ambidextrous charging handle, according to an exemplary embodiment of the present disclosure;

FIG. **80** illustrates a lower, front, perspective view of an exemplary embodiment of a handle element, according to an exemplary embodiment of the present disclosure;

FIG. **81** illustrates an upper, front, perspective view of an exemplary embodiment of a handle element, according to an exemplary embodiment of the present disclosure;

FIG. **82** illustrates an upper, front, left, perspective view of an exemplary embodiment of charging handle body, according to an exemplary embodiment of the present disclosure;

FIG. **83** illustrates an upper, left, perspective, exploded view of an exemplary embodiment of charging handle body, according to an exemplary embodiment of the present disclosure;

FIG. **84** illustrates a cutaway view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in a locked or partially locked position, according to an exemplary embodiment of the present disclosure;

FIG. **85** illustrates a cutaway view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in an unlocked position, according to an exemplary embodiment of the present disclosure;

FIG. **86** illustrates an upper, front, right, perspective view of an exemplary embodiment of charging handle body, according to an exemplary embodiment of the present disclosure;

FIG. **87** illustrates an upper, rear, left, perspective view of an exemplary embodiment of charging handle body, according to an exemplary embodiment of the present disclosure;

FIG. **88** illustrates a top view of an exemplary embodiment of charging handle body, according to an exemplary embodiment of the present disclosure;

FIG. **89** illustrates an upper, front, perspective view of an exemplary embodiment of a handle element, according to an exemplary embodiment of the present disclosure;

FIG. **90** illustrates a lower, front, perspective view of an exemplary embodiment of a handle element, according to an exemplary embodiment of the present disclosure;

FIG. **91** illustrates a bottom view of an exemplary embodiment of a handle element, according to an exemplary embodiment of the present disclosure;

FIG. **92** illustrates an upper, left, perspective, exploded view of an exemplary embodiment of charging handle body, according to an exemplary embodiment of the present disclosure;

FIG. **93** illustrates an upper, left, perspective, exploded view of certain components of an exemplary embodiment of charging handle body, according to an exemplary embodiment of the present disclosure;

FIG. **94** illustrates a cutaway view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in a locked position, according to an exemplary embodiment of the present disclosure;

FIG. **95** illustrates a cutaway view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in a locked position and the latch element is rotated to an unlocked position, according to an exemplary embodiment of the present disclosure;

FIG. **96** illustrates a cutaway view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in an unlocked position, according to an exemplary embodiment of the present disclosure;

FIG. **97** illustrates a cutaway view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in an unlocked position, according to an exemplary embodiment of the present disclosure;

FIG. **98** illustrates a cutaway view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in an unlocked position, according to an exemplary embodiment of the present disclosure;

FIG. **99** illustrates an upper, left, perspective, exploded view of an exemplary embodiment of charging handle body, according to an exemplary embodiment of the present disclosure;

FIG. **100** illustrates an upper, left, perspective, exploded view of certain components of an exemplary embodiment of charging handle body, according to an exemplary embodiment of the present disclosure;

FIG. **101** illustrates an lower, perspective, exploded view of an exemplary embodiment of charging handle body, according to an exemplary embodiment of the present disclosure;

FIG. **102** illustrates an lower, perspective, exploded view of an exemplary embodiment of charging handle body, according to an exemplary embodiment of the present disclosure;

FIG. **103** illustrates a cutaway view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is in a locked position, according to an exemplary embodiment of the present disclosure; and

FIG. **104** illustrates a cutaway view showing various components of an exemplary embodiment of an ambidextrous charging handle, wherein the latch element is rotated to an unlocked position, according to an exemplary embodiment of the present disclosure.

DETAILED DESCRIPTION OF THE INVENTION

For simplicity and clarification, the design factors and operating principles of the ambidextrous charging handle according to an exemplary embodiment of the present disclosure are explained with reference to various exemplary embodiments of an ambidextrous charging handle according to an exemplary embodiment of the present disclosure. The basic explanation of the design factors and operating principles of the ambidextrous charging handle is applicable for the understanding, design, and operation of the ambidextrous charging handle of the present disclosure. It should be appreciated that the ambidextrous charging handle can be adapted to many applications where an ambidextrous charging handle or strap can be used.

As used herein, the word "may" is meant to convey a permissive sense (i.e., meaning "having the potential to"), rather than a mandatory sense (i.e., meaning "must"). Unless stated otherwise, terms such as "first" and "second" are used to arbitrarily distinguish between the elements such terms describe. Thus, these terms are not necessarily intended to indicate temporal or other prioritization of such elements.

The term "coupled", as used herein, is defined as connected, although not necessarily directly, and not necessarily mechanically. The terms "a" and "an" are defined as one or more unless stated otherwise.

Throughout this application, the terms "comprise" (and any form of comprise, such as "comprises" and "comprising"), "have" (and any form of have, such as "has" and "having"), "include", (and any form of include, such as "includes" and "including") and "contain" (and any form of contain, such as "contains" and "containing") are used as open-ended linking verbs. It will be understood that these terms are meant to imply the inclusion of a stated element, integer, step, or group of elements, integers, or steps, but not the exclusion of any other element, integer, step, or group of elements, integers, or steps. As a result, a system, method, or apparatus that "comprises", "has", "includes", or "contains" one or more elements possesses those one or more elements but is not limited to possessing only those one or more elements. Similarly, a method or process that "comprises", "has", "includes" or "contains" one or more operations possesses those one or more operations but is not limited to possessing only those one or more operations.

It should also be appreciated that the terms "ambidextrous charging handle", "latch element", and "lever element" are used for basic explanation and understanding of the operation of the systems, methods, and apparatuses of the present disclosure. Therefore, the terms "ambidextrous charging handle", "latch element", and "lever element" are not to be construed as limiting the systems, methods, and apparatuses of the present disclosure.

Turning now to the drawing FIGS., FIGS. **1-24** illustrate various elements and/or aspects of an exemplary embodiment of the ambidextrous charging handle **100**, according to this disclosure. FIGS. **25-28** illustrate various elements and/or aspects of an exemplary embodiment of the ambidextrous charging handle **200**, FIGS. **29-32** illustrate various elements and/or aspects of an exemplary embodiment of the ambidextrous charging handle **300**, FIGS. **33-34** illustrate various elements and/or aspects of an exemplary embodiment of the ambidextrous charging handle **400**, FIGS. **35-46** illustrate various elements and/or aspects of an exemplary embodiment of the ambidextrous charging handle **500**, FIGS. **67-75** illustrate an exemplary, nonlimiting embodiment of the ambidextrous charging handle **700**, FIGS. **76-79** illustrate an exemplary, nonlimiting embodiment of the ambidextrous charging handle **800**, FIGS. **80-85** illustrate an exemplary, nonlimiting embodiment of the ambidextrous charging handle **900**, FIGS. **86-98** illustrate an exemplary, nonlimiting embodiment of the ambidextrous charging handle **1000**, and FIGS. **99-104** illustrate an exemplary, nonlimiting embodiment of the ambidextrous charging handle **1100**, according to this disclosure.

As illustrated in FIGS. **1-24**, the exemplary embodiment of the ambidextrous charging handle **100** of the present disclosure comprises a charging handle body **102**, a lever element **120**, a latch element **130**, and a spring biasing element **150**.

The charging handle body **102** comprises an elongate portion of material that extends along a longitudinal axis from a substantially T-shaped rear handle to a forward end having a bolt engagement element **103**. The T-shaped rear handle includes a right handle portion **105** and a left handle portion **106**. A handle recess **104** is formed within the T-shaped rear handle portion and is shaped so as to slidably receive at least a portion of the lever element **120** inside the handle recess **104**.

A slide protrusion or slide pin **140** extends from a bottom wall of the handle recess **104**. In certain exemplary embodiments, the slide protrusion or slide pin **140** extends from both the bottom wall and a top wall of the handle recess **104**. Alternatively, a slide pin aperture **108** may be formed through the charging handle body **102** and the slide protrusion or slide pin **140** may comprise a slide pin **140** positioned within the slide pin aperture **108**.

In various exemplary embodiments, the lever element **120** comprises an elongate portion of material that includes a lever recess **125** formed in a forward portion of the lever element **120**. In various exemplary embodiments, the lever recess **125** is formed at an obtuse angle, e, relative to a longitudinal axis of the lever element **120**.

An elongate lever channel **122** is formed through a portion of the lever element **120** from a top side to a bottom side, perpendicular to the longitudinal axis of the lever element **120**. The lever channel **122** is shaped so as to interact with the slide protrusion or slide pin **140** to enable the lever element **120** to be slidable forward and/or rearward, relative to the longitudinal axis of the charging handle **100**, within the handle recess **104**.

In various exemplary embodiments, slide support surfaces **107** are formed within the handle recess **104** so as to provide support or sliding surfaces for the lever element **120**.

The latch element **130** extends from a first portion to a second portion and a claw **132** (including a ramp surface **133** and shoulder **134**) is formed proximate the first portion of the latch element **130**. A latch protrusion **135** is formed proximate the second portion of the latch element **130**. The latch protrusion **135** is formed so as to be at least partially received within and interact with the lever recess **125** such that movement of the lever element **120** along the longitudinal axis of the charging handle **100** (forward and backward) produces lateral (side-to-side), non-pivoting, movement of the latch element **130** relative to the longitudinal axis of the charging handle **100**.

Because of the relative angles of the interior sidewalls of the lever recess **125** and the exterior sidewalls of the latch protrusion **135**, as the lever element **120** is urged from the locked position, as illustrated in FIG. **16**, to the unlocked position, as illustrated in FIG. **17**, the rearward movement of the lever element **120** (and the lever recess **125**) causes one or more of the sidewalls of the lever recess **125** to contact one or more of the sidewalls of the latch protrusion **135** and urged the latch protrusion **135** (and the latch element **130**) to move laterally, away from the charging handle body **102**.

If included, the spring biasing element **150** interacts between an interior side wall of the charging handle body **102** and the lever element **120** to bias the lever element **120** in a forward or locked position. As the lever element **120** is urged rearward, from either the right handle portion **105** or the left handle portion **106** of the charging handle body **102**, the spring bias of the spring biasing element **150** can be overcome to move the latch element **130** from the locked to unlocked position.

In various exemplary embodiments, a spring biasing element **150** comprises a curved portion of spring steel. In certain other exemplary, nonlimiting embodiments, the spring biasing element **150'** comprises one or more compression springs. It should also be understood that the spring biasing element **150** and/or **150'** may optionally comprise a spring, a resilient portion of material, or other element capable of providing a biasing force to the lever element **120**.

In various exemplary, nonlimiting embodiments, as illustrated in FIG. **20**, one or more alignment protrusions **109** extend within various portions of the handle recess **104** and correspond to mating alignment recesses **129** formed in the lever element **120**. If included, the one or more alignment protrusions **109** are aligned with or within the alignment recesses **129** during movement of the lever element **120** along the longitudinal axis of the charging handle **100**. It should also be appreciated that the protrusions may extend from the lever element **120** and interact with mating recesses formed in the handle recess **104**.

In various exemplary embodiments, a spring biasing element **150** or **150'** is positioned within each of the mating alignment recess **129** to provide spring biasing to the lever element **120**.

In certain exemplary embodiments, as illustrated in FIGS. **21-22**, the charging handle body **102** may be formed as an integral unit. As illustrated in FIG. **23**, the charging handle body **102'** may be formed of at least two portions of material. A lower handle portion **109'** that includes the bolt engagement element **103'** is attached or coupled to an upper handle portion **107'** to form the charging handle body **102'**. Alternatively, as illustrated in FIG. **24**, the charging handle body **102"** may be formed of at least two portions of material, wherein an upper handle portion **107"** that includes the bolt engagement element **103"** is attached or coupled to a lower handle portion **109"** to form the charging handle body **102"**. Suitable materials can be used and sections or elements made independently and attached or coupled together, such as by adhesives, welding, screws, rivets, pins, or other fasteners, to form the various elements of the ambidextrous charging handle body **102**, **102'**, and/or **102"**.

In various exemplary embodiments, various components of the ambidextrous charging handle **100** are substantially rigid and are formed of aluminum. Alternate materials of construction of the various components of the ambidextrous charging handle **100** may include one or more of the following: steel, stainless steel, titanium, and/or other metals, as well as various alloys and composites thereof, glass-hardened polymers, polymeric composites, polymer or fiber reinforced metals, carbon fiber or glass fiber composites, continuous fibers in combination with thermoset and thermoplastic resins, chopped glass or carbon fibers used for injection molding compounds, laminate glass or carbon fiber, epoxy laminates, woven glass fiber laminates, impregnate fibers, polyester resins, epoxy resins, phenolic resins, polyimide resins, cyanate resins, high-strength plastics, nylon, glass, or polymer fiber reinforced plastics, thermoform and/or thermoset materials, and/or various combinations of the foregoing. Thus, it should be understood that the material or materials used to form the various components of the ambidextrous charging handle **100** is a design choice based on the desired appearance and functionality of the ambidextrous charging handle **100**.

It should also be understood that the overall size and shape of the ambidextrous charging handle **100** and the various portions thereof is a design choice based upon the desired functionality and/or appearance of the ambidextrous charging handle **100**.

FIGS. **25-28** illustrate various elements and/or aspects of an exemplary embodiment of the ambidextrous charging handle **200**, of the present disclosure. As shown in FIGS. **25-28**, the ambidextrous charging handle **200** comprises at least some of a charging handle body **202**, a handle recess **204**, a right handle portion **205**, a left handle portion **206**, a lever element **220**, a latch element **230**, and two spring biasing elements **250**. It should be appreciated that each of these elements (as well as other, similarly named elements of the ambidextrous charging handle **200**) correspond to and operate similarly to similarly named elements, as described herein with reference to the ambidextrous charging handle **100** of FIGS. **1-24**. Thus, it should be appreciated that the ambidextrous charging handle **200** may incorporate one or any of the features are elements of the ambidextrous charging handle **100** of FIGS. **1-24**.

However, as shown in FIGS. **25-28**, two elongate lever channels **222** are formed through the lever element **220** (as opposed to the single elongate lever channel **122** formed through the lever element **120**). Similarly, two slide protrusions or slide pins **240** (as opposed to a single slide protrusion or slide pin **140**) enable the lever element **220** to be slidable forward and/or rearward, relative to the longitudinal axis of the charging handle **200**, within the handle recess **204**.

FIGS. **29-32** illustrate various elements and/or aspects of an exemplary embodiment of the ambidextrous charging handle **300**, of the present disclosure. As shown in FIGS. **29-32**, the ambidextrous charging handle **300** comprises at least some of a charging handle body **302**, a handle recess **304**, a right handle portion **305**, a left handle portion **306**, a lever element **320**, an elongate lever channel **322**, a latch element **330**, a slide protrusion or slide pin **340**, and a spring biasing element **350**. It should be appreciated that each of these elements (as well as other, similarly named elements

of the ambidextrous charging handle **300**) correspond to and operate similarly to similarly named elements, as described herein with reference to the ambidextrous charging handle **100** of FIGS. **1-24**. Thus, it should be appreciated that the ambidextrous charging handle **300** may incorporate one or any of the features are elements of the ambidextrous charging handle **100** of FIGS. **1-24**.

However, as shown in FIGS. **29-32**, the slide protrusion or slide pin **340** interacts with an elongate handle channel **308** formed in one or both of the bottom wall of the handle recess **304** and/or the top wall of the handle recess **304**.

FIGS. **33-34** illustrate various elements and/or aspects of an exemplary embodiment of the ambidextrous charging handle **400**, of the present disclosure. As shown in FIGS. **33-34**, the ambidextrous charging handle **400** comprises at least some of a charging handle body **402**, a handle recess **404**, a right handle portion **405**, a left handle portion **406**, a lever element **420**, an elongate lever channel **422**, a latch element **440**, and a spring biasing element **450**. It should be appreciated that each of these elements (as well as other, similarly named elements of the ambidextrous charging handle **400**) correspond to and operate similarly to similarly named elements, as described herein with reference to the ambidextrous charging handle **100** of FIGS. **1-24**. Thus, it should be appreciated that the ambidextrous charging handle **400** may incorporate one or any of the features are elements of the ambidextrous charging handle **100** of FIGS. **1-24**.

However, as shown in FIGS. **33-34**, two elongate handle channels **408** are formed through the charging handle body **402** (as opposed to the single elongate lever channel **308** formed through the charging handle body **302**). Similarly, two slide protrusions or slide pins **440** (as opposed to a single slide protrusion or slide pin **340**) enable the lever element **420** to be slidable forward and/or rearward, relative to the longitudinal axis of the charging handle body **402**, within the handle recess **404**.

FIGS. **35-51** illustrate various elements and/or aspects of an exemplary embodiment of the ambidextrous charging handle **500**, of the present disclosure. As shown in FIGS. **35-51**, the ambidextrous charging handle **500** comprises at least some of a charging handle body **502**, a handle recess **504**, a right handle portion **505**, a left handle portion **506**, one or more slide support surfaces **507**, two slide pin apertures **508**, a lever element **520**, two elongate lever channels **522**, a lever recess **525**, a latch element **530**, a claw **532**, a ramp surface **533**, a shoulder **534**, a latch protrusion **535**, two slide protrusions or slide pins **540**, and two spring biasing elements **550**. It should be appreciated that each of these elements (as well as other, similarly named elements of the ambidextrous charging handle **500**) correspond to and operate similarly to similarly named elements, as described herein with reference to the ambidextrous charging handles **100**, **200**, **300**, and/or **400**. Thus, it should be appreciated that the ambidextrous charging handle **500** may incorporate one or any of the features are elements of the ambidextrous charging handles disclosed herein.

Additionally, two spring biasing element recesses **529**, are formed within a rear portion of the lever element **520** and are sized and shaped so as to receive at least a portion of a spring biasing element **550** therein. The spring biasing elements **550** extend from the spring biasing element recesses **529** so as to contact a wall or other surface defining a portion of the handle recess **504** so as to provide a spring biasing force to the lever element **520**, biasing the lever element **520** toward a closed or locked position, as illustrated in FIG. **50**.

In certain exemplary embodiments, as illustrated in FIGS. **52-54** illustrate, the spring biasing element recesses **529** are replaced by an elongate spring biasing element channel recess **529'** and the coil spring type spring biasing elements **550** are replaced by a curved portion of spring steel or other resilient or biasing element to form a spring biasing element **550'**. The elongate spring biasing element channel recess **529'** provides a space or area of the lever element **520** formed so as to receive at least a portion of the spring biasing element **550'** therein and maintain the relative position of the spring biasing element **550'** relative to the lever element **520**.

The spring biasing element **550** interacts between an interior side wall of the charging handle body **502** and the lever element **520** to bias the lever element **520** in a forward or locked position. As the lever element **520** is urged rearward, the spring bias of the spring biasing element **550** can be overcome to move the latch element **530** from a locked position, as illustrated in FIG. **53** to an unlocked position, as illustrated in FIG. **54**.

FIGS. **55-66** illustrate an exemplary, nonlimiting embodiment of the ambidextrous charging handle **600**, according to this disclosure. As illustrated, the exemplary embodiment of the ambidextrous charging handle **600** comprises a charging handle body **602**, a latch element **630**, a first lever element **621**, a second lever element **622**, and a spring biasing element **650**.

The charging handle body **602** comprises an elongate portion of material that extends along a longitudinal axis from a rear handle portion to a forward end having a bolt engagement element **603**. The rear handle portion includes a handle recess **604** formed so as to pivotably receive at least a portion of the latch element **630**, the first lever element **621**, the second lever element **622**, and the spring biasing element **650**. The handle recess **604** includes a slide protrusion or slide pin **640** extending from a bottom wall of the handle recess **604**. Additionally, a camming element **605** extends from the bottom wall of the handle recess **604**.

The latch element **630** extends from a first portion to a second portion and a claw **632** (including a ramp surface **633** and shoulder **634**) is formed proximate the first portion of the latch element **630**. A primary latch protrusion **635** is formed proximate the second portion of the latch element **630**, in a top portion of the latch element **630**, while a secondary latch protrusion **636** is formed proximate the second portion of the latch element **630**, in a bottom portion of the latch element **630**.

The first lever element **621** comprises an elongate portion of material that extends from a latch engagement portion to a finger engagement portion. A pivot aperture **623** is formed through the latch engagement portion, such that when the pivot aperture **623** interacts with the pivot protrusion, the first lever element **621** is able to be pivoted from a locked position to an unlocked position. The first lever element **621** includes a curved, camming surface **629** formed so as to interact with a secondary latch protrusion **636** of the latch element **630**. A spring engagement protrusion **627** extends from a portion of the first lever element **621** so as to engage and interact with the spring biasing element **650**.

The second lever element **622** comprises an elongate portion of material that also extends from a latch engagement portion to a finger engagement portion. A pivot aperture **624** is formed through the latch engagement portion, such that when the pivot aperture **624** interacts with the pivot protrusion, the second lever element **622** is able to be pivoted from a locked position to an unlocked position. The second lever element **622** includes a lever recess **625** formed so as to interact with a primary latch protrusion **635** of the latch element **630**. A spring engagement protrusion **628**

extends from a portion of the second lever element **622** so as to engage and interact with the spring biasing element **650**.

The first lever element **621** and the second lever element **622** each include recessed surface areas **626** and **626'**, respectively, within their respective latch engagement portions such that portions of the first lever element **621** and the second lever element **622** are able to overlap one another. By providing overlapping portions, the lever recess **625** and the camming surface **629** are able to more easily interact with the primary latch protrusion **635** and the secondary latch protrusion **636**, respectively.

The primary latch protrusion **635** is formed so as to interact with the lever recess **625** of the second lever element **622** such that rotation of the second lever element **622** about the pivot protrusion produces lateral movement of the latch element **630** relative to the longitudinal axis of the charging handle **600**.

The secondary latch protrusion **636** is formed so as to interact with the camming surface **629** of the first lever element **621** such that rotation of the first lever element **621** about the pivot protrusion also produces lateral movement of the latch element **630** relative to the longitudinal axis of the charging handle **600**. When the camming surface **629** of the first lever element **621** produces movement of the latch element **630** (via interaction of the secondary latch protrusion **636** and the camming surface **629**) the primary latch protrusion **635** interacts with the lever recess **625** of the second lever element **622** to produce rotational movement of the second lever element **622**.

The spring biasing element **650** interacts between the spring engagement protrusion **627** of the first lever element **621** and the spring engagement protrusion **628** of the second lever element **622** to bias the first lever element **621** and the second lever element **622** against one another in a forward or locked position. As the first lever element **621** and/or the second lever element **622** is urged rearward, the spring bias of the spring biasing element **650** can be overcome to move the latch from the locked to unlocked position.

In various exemplary embodiments, a spring biasing element **650** comprises a spring. However, it should be appreciated that the spring biasing element **650** may comprise a spring, a resilient portion of material, or other element capable of providing a biasing force to the first lever element **621** and/or the second lever element **622**.

FIGS. **67-75** illustrate an exemplary, nonlimiting embodiment of the ambidextrous charging handle **700**, according to this disclosure. As illustrated, the exemplary embodiment of the ambidextrous charging handle **700** comprises a charging handle body **702**, a latch element **730**, a handle element **720**, and a spring biasing element **750**.

The charging handle body **702** comprises an elongate portion of material that extends along a longitudinal axis from a base portion **705** to a forward end having a bolt engagement element **703**.

The base portion **705** includes a body recess **715** formed within the base portion **705** portion, which is shaped so as to slidably receive at least a portion of the latch element **730** within at least a portion of the body recess **715**. An abutment protrusion **707** extends from a surface of the base portion **705**, so as to provide an abutment surface for the spring biasing element **750**. In various exemplary, nonlimiting embodiments, the base portion **705** is a substantially T-shaped base portion **705**.

Two elongate apertures **708** are formed through a portion of the base portion **705** and are formed so as to have substantially parallel longitudinal axes. Each elongate aperture **708** is formed so as to slidably receive at least a portion of a shoulder bolt **740** therethrough.

In various exemplary embodiments, the handle element **720** comprises an elongate portion of material that includes a handle recess **724** formed within a portion of the handle **720**. The handle recess **724** is formed so as to slidably receive at least a portion of the base portion **705** of the charging handle body **702** therein. A lever recess **725** is formed within the handle recess **724**. The lever recess **725** is shaped so as to slidably receive at least a portion of the latch element **730** within at least a portion of the lever recess **725**. In various exemplary embodiments, the lever recess **725** is formed at an obtuse or an acute angle, θ, relative to a longitudinal axis of the handle element **720**.

An elongate spring recess **727** is also formed within the handle recess **724** of the lever recess **725**. The spring recess **727** is generally formed perpendicular to a longitudinal axis of the handle element **720** and is formed so as to allow at least a portion of the abutment protrusion **707** to be positioned within the spring recess **727**, while allowing the spring biasing element **750** to also be positioned within the spring recess **727**.

Two threaded recesses **728** are formed in or through the handle element **720**. Each of the threaded recesses **728** is formed at a location that corresponds to an elongate aperture **708**. The threaded recesses **728** are formed and positioned so as to allow at least a portion of the threaded portion of each shoulder bolt **740** to be positioned through each elongate aperture and threadedly attached to the handle element **720**, via interaction between the external threads of the shoulder bolt **740** and the internal threads of the threaded recesses **728**. Once appropriately attached, a smooth portion of each shoulder bolt **740** is positioned within each elongate aperture **708** to allow the handle element **720** to be repeatably slidable relative to the base portion **705** of the charging handle body **702**.

The latch element **730** extends from a first portion to a second portion and a claw **732** (including a ramp surface **733** and shoulder **734**) is formed proximate the first portion of the latch element **730**. A latch protrusion **735** is formed proximate the second portion of the latch element **730**. The latch protrusion **735** is formed so as to be at least partially received within and interact with the body recess **715** and the lever recess **725** such that movement of the handle element **720** along the longitudinal axis of the charging handle **700** (forward and backward) produces lateral (side-to-side), non-pivoting, movement of the latch element **730** relative to the longitudinal axis of the charging handle **700**.

During assembly, the latch element **730** is positioned such that the latch protrusion **735** is positioned within both the body recess **715** and the lever recess **725**. The spring biasing element **150** is positioned such that a first end is abutted against an end wall of the spring recess **727**, while a second end is abutted against the abutment protrusion **707**. The shoulder bolts **740** are positioned through the elongate apertures **708**, and into at least a portion of the threaded recesses **728**.

Interaction between the three sidewalls of the handle recess **724** and the three exterior sidewalls of the base portion **705** maintain the handle element **720** in a desired position relative to the charging handle body **702**.

Interaction between the shoulder bolts **740** and the elongate apertures **708** allow the handle element **720** to be repeatably slidable between a locked position, as illustrated in FIGS. **72** and **73**, and an unlocked position, as illustrated in FIGS. **74** and **75**.

Because of the relative angles of the interior sidewalls of the body recess **715** and the lever recess **725** and the exterior sidewalls of the latch protrusion **735**, as the handle element **720** is urged from the locked position, as illustrated in FIGS. **72** and **73**, to the unlocked position, as illustrated in FIGS. **74** and **75**, the rearward movement of the handle element **720** (and the lever recess **725** relative to the stationary body recess **715**) causes one or more of the sidewalls of the lever recess **725** to contact one or more of the sidewalls of the latch protrusion **735** and urged the latch protrusion **735** (and the latch element **730**) to move laterally, away from the charging handle body **702**, within the body recess **715**.

If included, the spring biasing element **750** interacts between an interior side wall of the spring recess **727** and the abutment protrusion **707** to bias the handle element **720** two a forward or locked position. As the handle element **720** is urged rearward, the spring bias of the spring biasing element **750** can be overcome to move the latch element **730** from the locked to unlocked position.

In various exemplary embodiments, a spring biasing element **750** comprises one or more compression springs. It should also be understood that the spring biasing element **750** may optionally comprise a spring, a resilient portion of material, or other element capable of providing a biasing force to the handle element **720**.

In various exemplary embodiments, various components of the ambidextrous charging handle **700** are substantially rigid and are formed of aluminum. Alternate materials of construction of the various components of the ambidextrous charging handle **700** may include one or more of the following: steel, stainless steel, titanium, and/or other metals, as well as various alloys and composites thereof, glass-hardened polymers, polymeric composites, polymer or fiber reinforced metals, carbon fiber or glass fiber composites, continuous fibers in combination with thermoset and thermoplastic resins, chopped glass or carbon fibers used for injection molding compounds, laminate glass or carbon fiber, epoxy laminates, woven glass fiber laminates, impregnate fibers, polyester resins, epoxy resins, phenolic resins, polyimide resins, cyanate resins, high-strength plastics, nylon, glass, or polymer fiber reinforced plastics, thermoform and/or thermoset materials, and/or various combinations of the foregoing. Thus, it should be understood that the material or materials used to form the various components of the ambidextrous charging handle **700** is a design choice based on the desired appearance and functionality of the ambidextrous charging handle **700**.

It should also be understood that the overall size and shape of the ambidextrous charging handle **700** and the various portions thereof is a design choice based upon the desired functionality and/or appearance of the ambidextrous charging handle **700**.

FIGS. **76-79** illustrate an exemplary, nonlimiting embodiment of the ambidextrous charging handle **800**, according to this disclosure. As illustrated, the exemplary embodiment of the ambidextrous charging handle **800** comprises a charging handle body **802** extending from a base portion **805** to a forward end having a bolt engagement element **803**, an abutment protrusion **807**, two elongate apertures **808**, a body recess **815**, a handle element **820** having a handle recess **824**, a lever recess **825**, an elongate spring recess **827**, a latch element **830**, and a spring biasing element **850**.

It should be appreciated that each of these elements (as well as other, similarly named elements of the ambidextrous charging handle **800**) correspond to and operate similarly to similarly named elements, as described herein with reference to the ambidextrous charging handle **700** of FIGS. **67-75**. Thus, it should be appreciated that the ambidextrous charging handle **800** may incorporate one or any of the features or elements of the ambidextrous charging handle **700** of FIGS. **67-75** or one or any of the features or elements of the ambidextrous charging handles **100-600**.

However, as illustrated in FIGS. **76-79**, the shoulder bolts **740** are replaced by pins **840** and the threaded recesses **728** are replaced by apertures **828**.

In addition, alignment protrusions **809** extend from various portions of the base portion **805** and corresponding alignment recess **829** are formed in the sidewalls of the handle recess **824**. When the ambidextrous charging handle **800** is assembled, the one or more alignment protrusions **809** are aligned with and at least partially within the alignment recesses **829**.

With the addition of the alignment protrusions **809** and the alignment recesses **829**, the handle element **820** is maintained within a determined position relative to the base portion **805**. Thus, the shoulder bolts **740** are not required to maintain the position of the handle **820** relative to the base portion **805**. Because relative position is maintained by the interaction of the alignment protrusions **809** and the alignment recesses **829**, pins **840** may be used to replace the shoulder bolts **740**.

In various exemplary embodiments, the apertures **828** are tapered or include a shoulder so as to limit the position of the pins **840** within the apertures **828**. Open end of the apertures **828** may be utilized to apply pressure to install the pins **840** for removal.

FIGS. **80-85** illustrate an exemplary, nonlimiting embodiment of the ambidextrous charging handle **900**, according to this disclosure. As illustrated, the exemplary embodiment of the ambidextrous charging handle **900** comprises a charging handle body **902** extending from a base portion **905** to a forward end having a bolt engagement element **903**, two elongate apertures **908**, a body recess **915**, a handle element **920** having a handle recess **924**, a lever recess **925**, apertures **928**, a latch element **930**, and pins **940**.

It should be appreciated that each of these elements (as well as other, similarly named elements of the ambidextrous charging handle **900**) correspond to and operate similarly to similarly named elements, as described herein with reference to the ambidextrous charging handle **800** of FIGS. **76-79**. Thus, it should be appreciated that the ambidextrous charging handle **900** may incorporate one or any of the features or elements of the ambidextrous charging handle **800** of FIGS. **76-79**.

However, as illustrated in FIGS. **80-85**, the two elongate spring recesses **927** and two abutment protrusions **907** are included. Additionally, two spring biasing elements **950** are also included.

In addition, a structural rib **906** extends from a portion of the base portion **905**. When assembled, the structural rib **906** fits within a rib recess **923**, formed within the handle recess **924** of the handle **920**.

As further illustrated in FIG. **84**, the latch element **930** may be able to rotate a sufficient distance to allow the latch element **930** to reengage an upper receiver of a firearm, without requiring movement of the handle element **920**.

FIGS. **86-98** illustrate an exemplary, nonlimiting embodiment of the ambidextrous charging handle **1000**, according to this disclosure. As illustrated, the exemplary embodiment of the ambidextrous charging handle **1000** comprises a charging handle body **1002**, a latch element **1030**, a handle element **1020**, a first spring biasing element **1051**, and a second spring biasing element **1052**.

In various exemplary embodiments, the first spring biasing element **1051** and the second spring biasing element **1052** comprise one or more compression springs. It should also be understood that each of the first spring biasing element **1051** and the second spring biasing element **1052** may optionally comprise a spring, a resilient portion of material, or other element capable of providing a biasing force to the handle element **1020** and/or the latch element **1030**.

The charging handle body **1002** comprises an elongate portion of material that extends along a longitudinal axis from a base portion **1005** to a forward end having a bolt engagement element **1003**.

The base portion **1005** includes a body recess **1015** formed within the base portion **1005** portion, which is shaped so as to slidably receive at least a portion of the latch element **1030** within at least a portion of the body recess **1015**. An abutment protrusion **1007** extends from a surface of the base portion **1005**, so as to provide an abutment surface for the first spring biasing element **1051**. In various exemplary embodiments, the abutment protrusions **1007** includes a protrusion aperture **1010** formed so as to receive a spring placement pin **1011** at least partially therethrough.

An elongate aperture **1008** is formed through a portion of the base portion **1005** and is formed so as to have a longitudinal axis that is substantially parallel to the longitudinal axis of the charging handle body **1002**. The elongate aperture **1008** is formed so as to slidably receive at least a portion of a pin **1040** therethrough.

In various exemplary embodiments, the handle element **1020** comprises an elongate portion of material that includes a handle recess **1024** formed within a portion of the handle element **1020**. The handle recess **1024** is formed so as to slidably receive at least a portion of the base portion **1005** of the charging handle body **1002** therein. A lever recess **1025** is formed within the handle recess **1024**. The lever recess **1025** is shaped so as to slidably and pivotably receive at least a portion of the latch element **1030** within at least a portion of the lever recess **1025**.

A first spring recess **1026** and a second spring recess **1027** are each formed within the handle recess **1024** of the lever recess **1025**. The first spring recess **1026** is formed so as to allow at least a portion of the body abutment protrusion **1007** to be positioned within the first spring recess **1026**, while allowing the first spring biasing element **1051** to also be positioned within the first spring biasing recess **1026**.

The second spring recess **1027** is formed so as to allow at least a portion of the latch abutment protrusion **1037** to be positioned within the second spring recess **1027**, while allowing the second spring biasing element **1052** to also be positioned within the second spring biasing recess **1027**.

A recess **1028** is formed in or through the handle element **1020**. The recess **1028** is formed at a location that corresponds to an elongate aperture **1008**. The recess **1028** is formed and positioned so as to allow at least a portion of the pin **1040** to be positioned through the elongate aperture **1008** and frictionally or otherwise attached or coupled to the handle element **1020**, within a pivot protrusion **1021** that extends from the lever recess **1025**.

Once appropriately attached or coupled, a portion of the pin **1040** is positioned within the elongate aperture **1008** to allow the handle element **1020** to be repeatably slidable relative to the base portion **1005** of the charging handle body **1002**. The handle element **1020** is also at least partially rotatable relative to the base portion **1005** of the charging handle body **1002**. Thus, the handle element **1002** is both slidable and rotatable relative to the base portion **1005** of the charging handle body **1002**.

The latch element **1030** extends from a first portion to a second portion and a claw **1032** (including a ramp surface **1033** and shoulder **1034**) is formed proximate the first portion of the latch element **1030**. A latch protrusion **1035** is formed proximate the second portion of the latch element **1030**. The latch protrusion **1035** is formed so as to be at least partially received within and interact with the body recess **1015** and the lever recess **1025**.

An elongate pivot aperture **1038** is formed through the latch element **1030**. The elongate pivot aperture **1038** is formed so as to allow the latch element **1030** to be pivotably positioned about the pivot protrusion **1021**, via positioning of at least a portion of the pivot protrusion **1021** through the elongate pivot aperture **1038**.

Once appropriately attached or coupled, a portion of the pivot protrusion **1021** is positioned within the elongate pivot aperture **1038** to allow the latch element **1030** to be repeatably slidable relative to the handle element **1020**. The latch element **1030** is also at least partially rotatable relative to the handle element **1020**, via interaction of at least a portion of the pivot protrusion **1021** and the elongate pivot aperture **1038**. Thus, the latch element **1030** is both slidable and rotatable relative to the handle element **1020**.

A latch abutment protrusion **1037** extends from the latch element **1030**, so as to provide an abutment surface for the second spring biasing element **1052**.

A first stop protrusion **1041** and a second stop protrusion **1042** extend from at least a portion of the base portion **1005**. The first stop protrusion **1041** and the second stop protrusion **1042** extend so as to interact with recesses in the handle element **1020** to limit forward or rotational travel of the handle element **1020** relative to the base portion **1005**.

The latch element **1030** is positioned such that movement of the handle element **1020** along the longitudinal axis of the charging handle **1000** (forward and backward) produces lateral (side-to-side), non-pivoting, movement of the latch element **1030** relative to the longitudinal axis of the charging handle **1000**.

Movement of one side or the other side of the handle element **1020** rearward (rotational movement of the handle element **1020**), relative to the longitudinal axis of the charging handle **1000**, also produces lateral (side-to-side), non-pivoting, movement of the latch element **1030** relative to the longitudinal axis of the charging handle **1000**.

During assembly, the latch element **1030** is positioned such that the pivot protrusion **1021** is positioned within the elongate pivot aperture **1038** of the latch element **1030**. The handle element **1020** is slidably positioned, via interaction of alignment protrusions **1009** extending from the base portion **1005** and alignment recesses **1029** formed within at least a portion of the lever recess **1025**.

Interaction between the alignment protrusions **1009** and the alignment recesses **1029** maintain the handle element **1020** in a desired position relative to the charging handle body **1002**.

The handle element **1020** is slidably positioned such that the pivot aperture **1028** is aligned with the elongate aperture **1008**. When the handle element **1020** is appropriately positioned, the pin **1040** is positioned at least partially through the elongate aperture **1008** and frictionally or otherwise secured within the pivot aperture **1028**.

Interaction between the pin **1040** and the elongate aperture **1008** allows the handle element **1020** to be repeatably

slidable between a locked position, as illustrated in FIG. **94**, and an unlocked position, as illustrated in FIGS. **96-98**.

The first spring biasing element **1051** is urged through a first spring assembly aperture in the rear of the handle element **1020** and into the first spring recess **1026**. The first spring biasing element **1051** is positioned such that a first end is abutted against an end wall of the first spring recess **1026**, while a second end is abutted against the abutment protrusion **1007**. Once positioned, a spring placement pin **1011** urged through a protrusion aperture **1010** and at least partially into the first spring recess **1026**, so as to be at least partially positioned within at least certain of the coils of the first spring biasing element **1051**. In this manner, the spring placement pin **1011** is able to help maintain the desired position of the first spring biasing element **1051** within the first spring recess **1026**. Thus, the first spring biasing element **1051** is able to provide spring biasing to the handle element **1020**.

The second spring biasing element **1052** is urged through a second spring assembly aperture in the rear of the handle element **1020** and into the second spring recess **1027**. The second spring biasing element **1052** is positioned such that a first end is abutted against an end wall of the second spring recess **1027**, while the second end is abutted against the latch abutment protrusion **1037**. Thus, the second spring biasing element **1052** is able to provide spring biasing to the latch element **1030**, independent of movement of the handle element **1020**.

Because of the relative angles of the interior sidewalls of the body recess **1015** and the lever recess **1025** and the exterior sidewalls of the latch protrusion **1035**, as the handle element **1020** is urged from the locked position, as illustrated in FIG. **94**, to the unlocked position, along the longitudinal axis of the charging handle body **1002**, as illustrated in FIG. **96**, the rearward movement of the handle element **1020** (and the lever recess **1025** relative to the stationary body recess **1015**) causes one or more of the sidewalls of the lever recess **1025** to contact one or more of the sidewalls of the latch protrusion **1035** and urged the latch protrusion **1035** (and the latch element **1030**) to move laterally, away from the charging handle body **1002**, within the body recess **1015**.

Because the latch element **1030** is able to pivot, relative to the pivot protrusion **1021**, the latch element **1030** can be urged, in a rotational manner, to the unlocked position, as illustrated in FIG. **95**, if the ramped surface **1033** of the latch element **1030** is urged away from the charging handle body **1002**.

If, as illustrated in FIG. **97**, the left side of the handle element **1020** is urged rearward, the handle element **1020** is able to be urged from the locked position, as illustrated in FIG. **94**, to the unlocked position, as illustrated in FIG. **97**. The rearward movement of the left side of the handle element **1020** causes one or more of the sidewalls of the lever recess **1025** to contact one or more of the sidewalls of the latch protrusion **1035** and urged the latch protrusion **1035** (and the latch element **1030**) to move laterally, away from the charging handle body **1002**, within the body recess **1015**.

Rotational movement of the handle element **1020** is limited by interaction between the second stop protrusion **1042** and a recess of the handle element **1020**.

If, as illustrated in FIG. **98**, the right side of the handle element **1020** is urged rearward, the handle element **1020** is able to be urged from the locked position, as illustrated in FIG. **94**, to the unlocked position, as illustrated in FIG. **98**. The rearward movement of the right side of the handle element **1020** causes one or more of the sidewalls of the lever recess **1025** to contact one or more of the sidewalls of the latch protrusion **1035** and urged the latch protrusion **1035** (and the latch element **1030**) to move laterally, away from the charging handle body **1002**, within the body recess **1015**.

Rotational movement of the handle element **1020** is limited by interaction between the second first protrusion **1041** and a recess of the handle element **1020**.

In various exemplary embodiments, various components of the ambidextrous charging handle **1000** are substantially rigid and are formed of aluminum. Alternate materials of construction of the various components of the ambidextrous charging handle **1000** may include one or more of the following: steel, stainless steel, titanium, and/or other metals, as well as various alloys and composites thereof, glass-hardened polymers, polymeric composites, polymer or fiber reinforced metals, carbon fiber or glass fiber composites, continuous fibers in combination with thermoset and thermoplastic resins, chopped glass or carbon fibers used for injection molding compounds, laminate glass or carbon fiber, epoxy laminates, woven glass fiber laminates, impregnate fibers, polyester resins, epoxy resins, phenolic resins, polyimide resins, cyanate resins, high-strength plastics, nylon, glass, or polymer fiber reinforced plastics, thermoform and/or thermoset materials, and/or various combinations of the foregoing. Thus, it should be understood that the material or materials used to form the various components of the ambidextrous charging handle **1000** is a design choice based on the desired appearance and functionality of the ambidextrous charging handle **1000**.

It should also be understood that the overall size and shape of the ambidextrous charging handle **1000** and the various portions thereof is a design choice based upon the desired functionality and/or appearance of the ambidextrous charging handle **1000**.

FIGS. **99-104** illustrate an exemplary, nonlimiting embodiment of the ambidextrous charging handle **1100**, according to this disclosure. As illustrated, the exemplary embodiment of the ambidextrous charging handle **1100** comprises a charging handle body **1102** extending from a base portion **1105** to a forward end, a handle element **1120**, and a latch element **1130**.

It should be appreciated that each of these elements (as well as other, similarly named or numbered elements of the ambidextrous charging handle **1100**) correspond to and operate similarly to similarly named elements, as described herein with reference to the ambidextrous charging handle **1000** of FIGS. **86-98**. Thus, it should be appreciated that the ambidextrous charging handle **1100** may incorporate one or any of the features or elements of the ambidextrous charging handle **1000** of FIGS. **86-98**.

However, as illustrated in FIGS. **99-104**, the pin **1040** is replaced by two fasteners **1140**. Additionally, the recess **1028** is replaced by two threaded protrusion apertures and the pivot protrusion **1021** is replaced by an extending pivot pin.

It should also be appreciated that a more detailed explanation of the instructions regarding how to install and use the ambidextrous charging handle are not provided herein because it is believed that the level of description provided herein will provide sufficient information to enable one of ordinary skill in the art to understand and practice the disclosure, as described.

While the charging handle of the present disclosure has been described in conjunction with the exemplary embodiments outlined above, the foregoing description of exem-

plary embodiments of the disclosure, as set forth above, are intended to be illustrative, not limiting and the fundamental disclosure should not be considered to be necessarily so constrained. It is evident that the disclosure is not limited to the particular variation set forth and many alternatives, adaptations modifications, and/or variations will be apparent to those skilled in the art.

It is to be understood that the phraseology of terminology employed herein is for the purpose of description and not of limitation. Unless defined otherwise, all technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this disclosure belongs.

In addition, it is contemplated that any optional feature of the inventive variations described herein may be set forth and claimed independently, or in combination with any one or more of the features described herein.

Accordingly, the foregoing description of exemplary embodiments will reveal the general nature of the disclosure, such that others may, by applying current knowledge, change, vary, modify, and/or adapt these exemplary, non-limiting embodiments for various applications without departing from the spirit and scope of the disclosure and elements or methods similar or equivalent to those described herein can be used in practicing the present disclosure. Any and all such changes, variations, modifications, and/or adaptations should and are intended to be comprehended within the meaning and range of equivalents of the disclosed exemplary embodiments and may be substituted without departing from the true spirit and scope of the disclosure.

Also, it is noted that as used herein and in the appended claims, the singular forms "a", "and", "said", and "the" include plural referents unless the context clearly dictates otherwise. Conversely, it is contemplated that the claims may be so-drafted to require singular elements or exclude any optional element indicated to be so here in the text or drawings. This statement is intended to serve as antecedent basis for use of such exclusive terminology as "solely", "only", and the like in connection with the recitation of claim elements or the use of a "negative" claim limitation(s).

What is claimed is:

1. A charging handle assembly, comprising:

a charging handle body that extends from a base portion;

a handle element, wherein said handle element is attached or coupled to said base portion of said charging handle body, such that said handle element is repeatably slidable relative to said base portion of said charging handle body and is also at least partially rotatable relative to said base portion of said charging handle body; and

a latch element having an elongate pivot aperture formed therethrough, wherein said latch element is repeatably slidable relative to said handle element and is also at least partially rotatable relative to said handle element, and wherein at least a portion of said latch element is formed so as to interact with at least a portion of said handle recess such that rotational or longitudinal movement of said handle element relative to a longitudinal axis of said charging handle produces lateral, translational movement of said latch element relative to said charging handle body.

2. The charging handle of claim **1**, wherein rotational movement of said latch element does not induce movement of said handle element.

3. The charging handle of claim **1**, further comprising a first spring biasing element that biases said handle element toward a locked position.

4. The charging handle of claim **1**, further comprising a second spring biasing element that biases said latch element toward a locked position.

5. The charging handle of claim **1**, further comprising a claw formed proximate a first portion of said latch element.

6. The charging handle of claim **1**, wherein said handle element is attached or coupled to said base portion of said charging handle body via interaction of a pin positioned through an elongate aperture formed through a portion of said base portion and attached or coupled to said handle element.

7. The charging handle of claim **6**, wherein said elongate aperture formed through a portion of said base portion is formed so as to have a longitudinal axis that is substantially parallel to said longitudinal axis of said charging handle body.

8. The charging handle of claim **1**, further comprising a first stop protrusion and a second stop protrusion, wherein said first stop protrusion and said second stop protrusion extend from at least a portion of said base portion so as to interact with said handle element to limit forward or rotational movement of said handle element relative to said base portion.

9. The charging handle of claim **1**, wherein said base portion is a substantially T-shaped base portion.

10. A Charging Handle Assembly, comprising:

a charging handle body extending from a base portion;

a handle element attached or coupled to said base portion, such that said handle element is repeatably slidable relative to said base portion and is also at least partially rotatable relative to said base portion; and

a latch element having an elongate pivot aperture formed therethrough, wherein said latch element is repeatably slidable relative to said handle element and is also at least partially rotatable relative to said handle element, and wherein at least a portion of said latch element is formed so as to interact with at least a portion of said handle recess such that rotational or longitudinal movement of said handle element relative to a longitudinal axis of said charging handle produces lateral, translational movement of said latch element relative to said charging handle body.

11. The charging handle of claim **10**, further comprising a first spring biasing element that biases said handle element toward a locked position.

12. The charging handle of claim **10**, further comprising a second spring biasing element that biases said latch element toward a locked position.

13. The charging handle of claim **10**, wherein said handle element is attached or coupled to said base portion of said charging handle body via interaction of a pin positioned through an elongate aperture formed through a portion of said base portion and attached or coupled to said handle element.

14. The charging handle of claim **10**, wherein rotational movement of said latch element does not induce movement of said handle element.

15. The charging handle of claim **10**, wherein said base portion is a substantially T-shaped base portion.

16. A charging handle assembly, comprising:

a charging handle body having a base portion;

a handle element slidably and at least partially rotatable relative to said base portion; and

a latch element slidable and at least partially rotatable relative to said handle element, and wherein at least a portion of said latch element is formed so as to interact with at least a portion of said handle recess such that

rotational or longitudinal movement of said handle element relative to a longitudinal axis of said charging handle produces lateral, translational movement of said latch element relative to said charging handle body.

17. The charging handle of claim **16**, further comprising a first spring biasing element that biases said handle element toward a locked position and a second spring biasing element that biases said latch element toward a locked position.

18. The charging handle of claim **16**, wherein rotational movement of said latch element does not induce movement of said handle element.

19. The charging handle of claim **16**, wherein said handle element is attached or coupled to said base portion of said charging handle body via interaction of a pin positioned through an elongate aperture formed through a portion of said base portion and attached or coupled to said handle element.

20. The charging handle of claim **19**, wherein said elongate aperture formed through a portion of said base portion is formed so as to have a longitudinal axis that is substantially parallel to said longitudinal axis of said charging handle body.

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